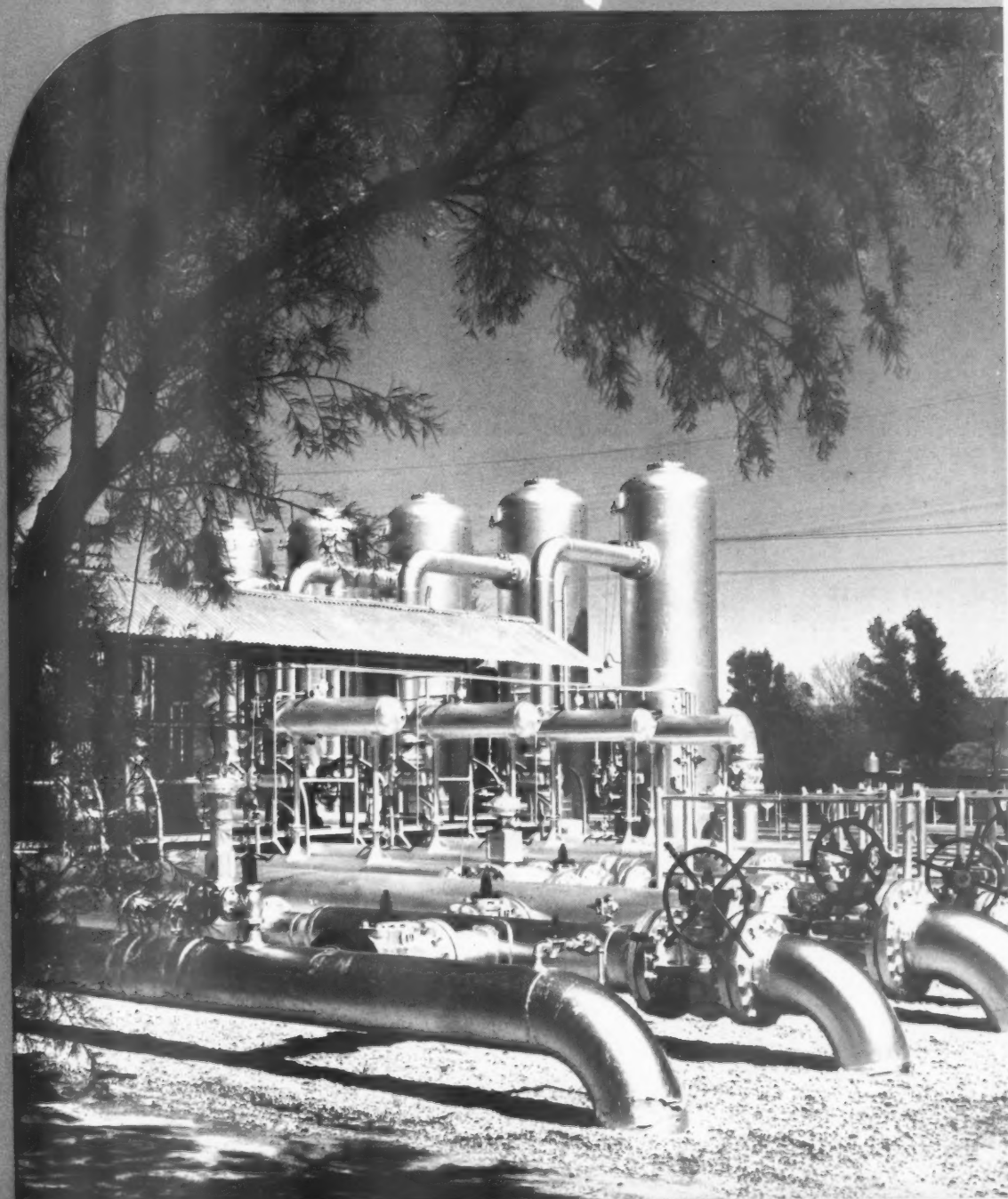
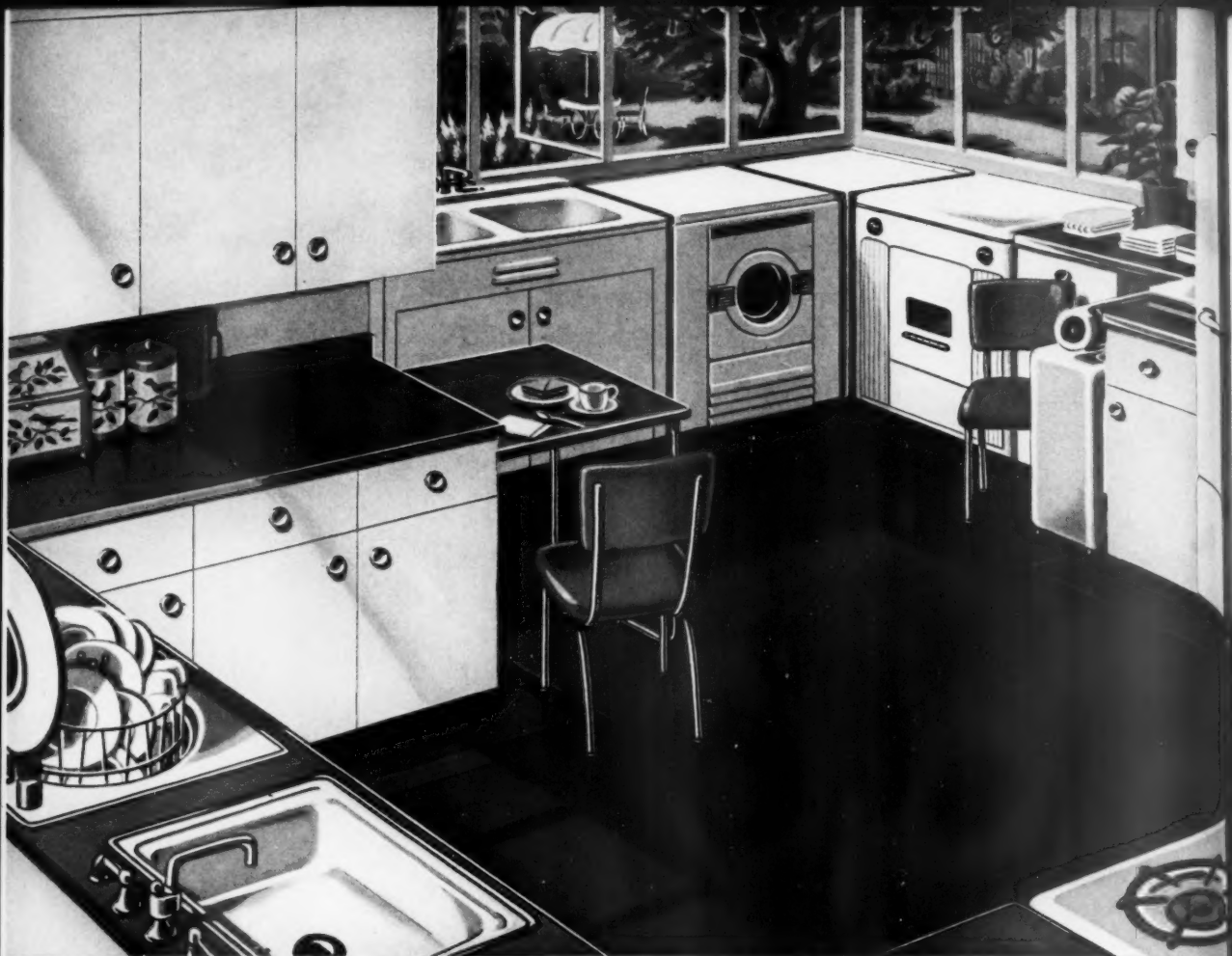


AMERICAN GAS ASSOCIATION

Monthly

APRIL 1949





DRY-HANDS DISHWASHING! It's *easy* with a new automatic Gas water-heater! For Gas provides the **HOT** hot water a new do-everything dishwasher *must* have for sparkling *germ-free* results. Is so flexible and exact you can get any temperature you want for *any* use—*instantly, accurately, automatically!*

"NO WORK" CLOTHES WASHING! New automatic Gas water-heater *faster* than any other all-automatic system. Give you 60 gallons needed for an automatic laundry to soak, scrub and rinse 27 pounds (average weekly wash) and still leave a full tank for every other use!

Now! a million dollars' worth of convenience — for a few cents a day!



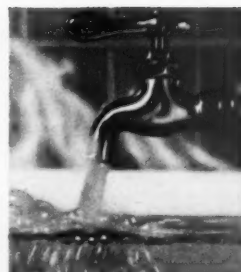
SHOWERS BY THE HOUR—any hour—day or night! And with a new automatic Gas water-heater there's no waiting, no lighting, no need to worry about the rest of the family!



FINGERTIP TEMPERATURE CONTROL. Now you can get even hotter water when you need it! Just turn the snap-action thermostat and your Gas water-heater responds immediately!



SAFE — CLEAN — SUPER-INSULATED. Complete 3-way safety controls! New extra-heavy heat-saving insulation! New streamlined design for shining cleanliness, lasting beauty!



365-DAYS-A-YEAR SERVICE. A new Gas water-heater never leaves you high-and-dry due to *slow* fuel deliveries, *slow* reheating power or sudden storms!



A MONTH OF SAVINGS! Any way you look at it, Gas water-heater is a *run, buy and install* other 100% automatic!

LOOK FOR THIS "COURT OF FLAME" Gold Seal before you buy. It's the *symbol-of-quality* in automatic Gas water-heaters! But remember—*size* is important, too. Ask your Gas company, merchant plumber or appliance dealer to recommend the right size for all your needs both *today and tomorrow!*
AMERICAN GAS ASSOCIATION



for hot water magic **GAS**

* Step-saving combination—another New Freedom Gas Kitchen design which will appear in June in House Beautiful, American Home, Better Homes & Gardens



Shown on the cover is a natural gas measuring and odorizing station. Photo by Mel Jones, Southern California Gas Co.

THE arrival of spring brings a freshness of outlook, a renewal of purpose and the first fruits of winter planning. . . . Already the results of hard work in promotional, advertising and research fields are evident. This month there grows in Brooklyn an unusually well-conceived and executed program enlisting everyone from dealers to employees in a drive to sell more gas appliances. . . . On the national level, the Association is completing its first advertisements on automatic gas water heating. Fifty-four carefully selected research projects are laying the groundwork for increased efficiency in gas production and transmission and for still greater upgrading of gas appliances. . . . Meanwhile, the Laboratories have released recommendations for installing gas furnaces in confined spaces—an event of particular interest in view of the trend to smaller, more tightly constructed homes. . . . Overshadowing all other events this month is the singular fact that natural gas reserves have risen again to a record figure. . . . The MONTHLY welcomes spring with a new pictorial cover.

JAMES M. BEALL
MANAGER, PUBLICATIONS
JAC A. CUSHMAN
EDITOR

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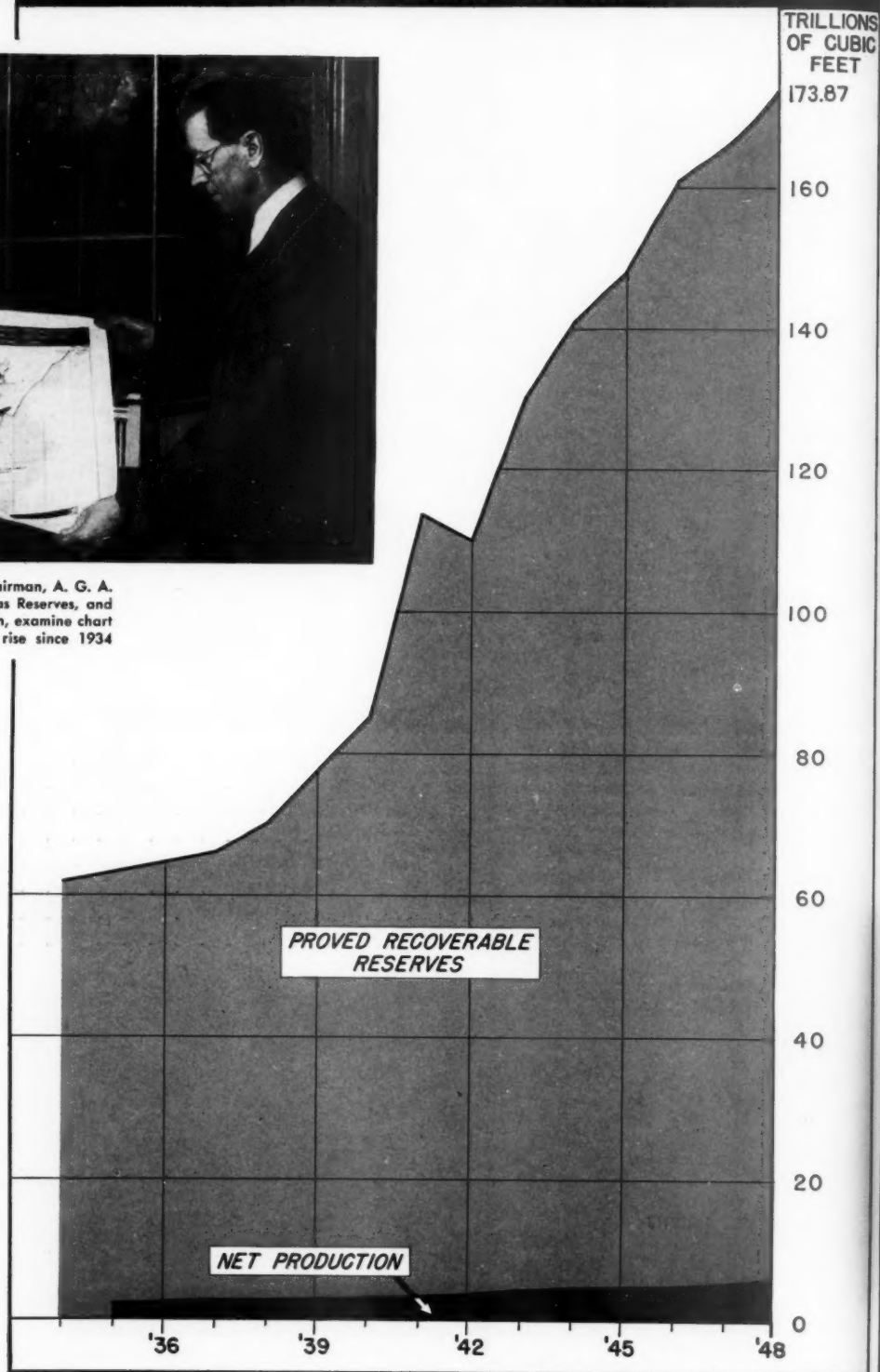
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PROVED RECOVERABLE RESERVES AND NET PRODUCTION OF NATURAL GAS in the United States



N. C. McGowen (left), chairman, A. G. A. Committee on Natural Gas Reserves, and R. M. Bauer, committeeman, examine chart showing reserves' steady rise since 1934



Natural gas reserves rise

Proved reserves of natural gas and liquid hydrocarbons in the United States on December 31, 1948 were estimated at record new highs of 173.87 trillion cubic feet and 26.82 billion barrels, respectively, according to a joint report of the Committees on Reserves of the American Gas Association and the American Petroleum Institute. A year earlier, proved reserves of natural gas were set at 165.93 trillion cubic feet and total liquid hydrocarbon reserves at 24.74 billion barrels.

Discoveries of new natural gas fields and of new pools in old fields added 4.13 trillion cubic feet to estimated reserves in 1948, while extensions and revisions of previous estimates of reserves in existing fields amounted to 9.77 trillion cubic feet.

Indicative of the increasing importance of underground storage is the fact that estimated reserves of natural gas stored underground were 51.5 billion cubic feet greater on December 31, 1948 than on December 31, 1947.

Estimated net production of natural gas for 1948 was 6.01 trillion cubic feet compared with 5.63 trillion cubic feet produced in 1947. Reserves of natural gas liquids on December 31, 1948 amounted to 3.54 billion barrels, compared with 3.25 billion barrels a year earlier.

Another significant fact apparent from the new report is that extensions and revisions of natural gas reserves, together with discoveries of new fields and new pools in old fields, totaled more than 13.8 trillion cubic feet in 1948, whereas net production of natural gas during the year was approximately six trillion cubic feet. Thus the extensions,

revisions and discoveries were more than double the gas produced in 1948, and the net gain exceeded the gas produced.

This is the third in a series of joint yearly reports by the two committees marking a new method of estimating the nation's petroleum sources. The latest estimate of proved natural gas reserves is 13.2 trillion cubic feet higher than the estimate made when the committees first released their report in 1946.

N. C. McGowen, who has headed the A.G.A. Committee on Natural Gas Reserves since its formation in October 1945, is a former president and director of the American Gas Association. During the war he served as a member of the Petroleum Industry War Council and was chairman, Natural Gas and Gasoline Committee for district three (Petroleum Industry Committee appointed by the Petroleum Administrator for War). Mr. McGowen has just completed 35 years of service with United Gas Pipe Line Co., Shreveport, La., of which he is president.

Groups of outstanding experts have been appointed by Mr. McGowen to serve as chairmen of subcommittees to estimate reserves in ten natural gas producing regions. These chairmen serve as members of the A. G. A. Committee on Natural Gas Reserves, which is composed as follows:

R. M. Bauer, Southern California Gas Co., Los Angeles, Calif.; E. A. Brown, Lone Star Gas Co., Dallas, Texas; R. O. Garrett, Arkansas Louisiana Gas Co., Shreveport, La.; Charles C. Hoffman, Cities Service Gas Co., Oklahoma City, Okla.; Frederick S. Lott, Bureau of Mines; W. S.



A. G. A. Committee on Natural Gas Reserves checking latest data during 1949 meeting. (Seated, left to right) L. S. Fennell, Shreveport, La.; William Burke, Dallas, Texas; Max K. Watson, Amarillo; K. C. Cottingham, Columbus, Ohio; Otto E. Zwanzig, New York, N. Y.; N. C. McGowen, Shreve-

port, chairman; L. H. Maltzer, Shreveport; George Smith, New York, N. Y.; C. E. Turner, Bartlesville, Okla., and Perry Olcott, Houston; (standing) Henry Toler, Jackson, Miss.; W. S. McCabe, Casper, Wyo.; Charles Hoffman, Oklahoma City; R. M. Bauer, Los Angeles; C. C. Ingram, Tulsa, Okla.

NATURAL GAS RESERVES

(Thousands of Cubic Feet)

Total proved reserves as of December 31, 1947		165,926,914,000
Extensions and revisions of previous estimate	9,769,483,000	
New reserves discovered in 1948	4,129,089,000	
Net changes in "stored gas" during 1948	51,482,000	
Total proved reserves added and net changes in "stored gas" during 1948		13,950,054,000
Total proved reserves as of December 31, 1947 and additions during 1948	179,876,968,000	
Deduct production during 1948	6,007,628,000	
Total proved reserves of natural gas as of December 31, 1948		173,869,340,000

Reserves data are shown by states in Table 1.

NATURAL GAS LIQUIDS RESERVES

(Millions of Barrels)

Total proved reserves as of December 31, 1947		3,253,975,000
Extensions and revisions of previous estimate	405,874,000	
New reserves discovered in 1948	64,683,000	
Total proved reserves added in 1948		470,557,000
Total proved reserves as of December 31, 1947 and new proved reserves added in 1948		3,724,532,000
Deduct production during 1948		183,749,000
Total proved reserves of natural gas liquids as of December 31, 1948		3,540,783,000

Reserves data are shown by states in Table 2.

McCabe, Stanolind Oil and Gas Co., Casper, Wyoming; L. H. Meltzer, Union Producing Co., Shreveport, La.; Perry Olcott, Humble Oil and Refining Co., Houston, Texas; E. E. Roth, Columbia Engineering Corp., New York, N. Y.; J. T. Scopes, Union Producing Co.; Henry Toler, Southern Natural Gas Co., Birmingham, Ala.; C. E. Turner, Phillips Petroleum Co., Bartlesville, Okla.; George H. Smith, A. G. A., secretary, and Otto E. Zwanzig, A. G. A., assistant secretary of the committee.

The A. P. I. Committee on Petroleum Reserves is headed by F. H. Lahee, Sun Oil Co., Dallas, Texas, and consists of G. Clark Gester, Standard Oil Co. of California, San Francisco, vice-chairman; Fred Van Covern, A. P. I., secretary; R. F. Baker, The Texas Co., New York; L. T. Barrow, Humble Oil & Refining Co., Houston, Texas; D. V. Carter, Magnolia Petroleum Co., Dallas, Texas; Frank R. Clark, The Ohio Oil Co., Tulsa, Okla.; Alexander Deussen, consulting geologist, Houston, Texas; J. M. Sands,

Phillips Petroleum Co., Bartlesville, Okla.; P. R. Schultz, Stanolind Oil & Gas Co., Tulsa, Okla., and Theron Wasson, The Pure Oil Co., Chicago, Illinois.

In view of the importance of the joint reports, the MONTHLY has printed them below:

A. G. A. committee report

The American Gas Association Committee on Natural Gas Reserves submits its fourth annual report, summarizing the proved recoverable reserves of natural gas and natural gas liquids of the United States, as of December 31, 1948.

The committee has included in this report for the first time, a study of the natural gas located in underground storage reservoirs. The "stored gas" is considered to be the gas which has been transferred from its original location in a gas and/or oil field to another natural underground reservoir for the primary purposes of conservation, fuller utilization of pipeline ca-

pacities and more effective delivery to markets.

The "stored gas" reserve is the quantity which has been placed in a natural reservoir and not yet removed. Any additional recoverable gas which may have been in the underground storage reservoirs when injection was begun, and has not yet been produced, is classified in its proper category and listed as in the committee's earlier reports. The distinction is now made between "production" of gas from its original reservoir and "net change in underground storage."

Tables 3 and 4 are summaries of the committee's annual reports for the period from December 31, 1945, to December 31, 1948. Table 3 reflects the natural gas reserve position of the United States at the end of each of the last four years. Table 4 shows the natural gas liquid reserves of the United States for the last three years, since an estimate of natural gas liquids was not included in the committee's first report.

In its report of December 31, 1946, this committee defined natural gas liquids as: "... those hydrocarbon liquids that are gaseous in the reservoir but are obtainable by condensation or absorption. Natural gasoline, condensate, and liquefied petroleum gases fall in this category."

In order to prevent misunderstanding of this term it is further amplified as follows: The natural gas liquids are those heavier hydrocarbon components of the natural gas which are removed and reduced to the liquid state by various processes. These processes usually take place in the field separators, scrubber, gasoline plant, or cycling plant. The liquids so collected and the products made from them in some of the modern plants are known by a variety of names, but they have been grouped together here under the general heading "natural gas liquids."

The committee emphasizes again that it is not possible to estimate the total reserves of a field in the year of discovery. Satisfactory estimates can be made only after sufficient development of the field, and, in some cases, adequate production history. For these reasons, the reserves listed as discovered during any current year must be considered only as the reserves indicated by the drilling in that year. The estimated reserves of these new fields

and pools will be revised in future reports and shown as "extensions and revisions."

The procedures followed in arriving at and assembling the reserve figures were the same as those used in past reports. The proved reserves may be in either the drilled or undrilled portion of a given field. Where the undrilled areas are considered proved, they are so related to the developed acreage and to the known field geology and structure that their productive ability is considered assured. Recoverable reserves of natural gas are the reserves estimated to be producible under present operating practices. Since the estimates are made by fields, the recovery factors or abandonment pressures used in the calculations were determined by the operating conditions of each individual field. Proved recoverable reserves of natural gas liquids are those contained in recoverable gas reserves and extractable by methods now in use.

In the preparation of these estimates, as in those of previous years, this committee has had the helpful cooperation of the Committee on Petroleum Reserves of the American Petroleum Institute. To that group this committee is indebted in large measure

for the estimates of the dissolved gas reserves which are based on that committee's estimate of crude oil reserves.

Incorporated in this report are the results of careful study of many hundreds of fields and pools throughout the United States. Such an undertaking requires the help of specially trained geologists and engineers familiar with the various producing areas throughout the country. The committee is fortunate in having received the help of such a group of men who have served as subcommittees. They have given generously of their time and efforts to the end that these estimates might be complete and as accurate as possible.

A. P. I. committee report

As will be recalled, beginning with the report for December 31, 1946, the estimates presented on proved liquid hydrocarbon reserves were expanded to include not only crude oil, but also all classes of natural gas liquids. The figures on crude oil were prepared by the A. G. A. committee, in cooperation with the A. P. I. Committee. For the present report, the same procedure has been followed.

As of December 31, 1948, the committee estimates that the proved reserves of crude oil in the United States amounted to 23,280,444,000 barrels. The natural gas liquids totaled 3,540,783,000 barrels, making a grand total, of liquid hydrocarbons of 26,821,227,000 barrels. This is shown in the following tabulations.

The estimates in this report, as in all previous annual reports of this committee, refer solely to proved or blocked-out reserves. They include only oil and natural gas liquids recoverable under existing economic and operating conditions.

The estimates made for this report do not include:

1. Oil† under the unproved portions of partly developed fields.
2. Oil in untested prospects.
3. Oil that may be present in unknown prospects in regions believed to be generally favorable.

* The 1948 production figures were compiled by the committee and are based on 11 months' actual production with an estimate for December. Any variance between the actual production, as later reported, and the figures used herein will be compensated for through revision when the following years' reserve report is compiled. These revisions in the past have been very small.

† The word "oil" unless defined as crude oil is used in this report as essentially equivalent to liquid hydrocarbons.

TABLE 1—ESTIMATED PROVED RECOVERABLE RESERVES OF NATURAL GAS IN THE UNITED STATES

(Millions of Cubic Feet—14.65 psia, at 60° F)

	CHANGES IN RESERVES DURING 1948 (b)					RESERVES AS OF DECEMBER 31, 1948 (b)				
	Reserves as of Dec. 31, 1947	Extensions and Revisions	Discoveries of New Fields and New Pools in Old Fields	Net Change in Under-ground Storage	Net Production ^d	Total	Non-Associated ^a	Associated ^c	Dissolved ^e	Under-ground Storage ^b
Alabama	890,149	73,969	3,484	(—)10	65,754	901,838	457,906	161,919	280,568	1,445
Arkansas	10,164,356	498,673	111,257	(—)2,699	578,994	10,192,593	2,911,991	3,052,802	4,215,775	12,025
California	331,866	621,577	408,148	—	12,412	1,349,179	586,757	40,939	721,483	—
Colorado	221,131	43,310	—	—	36,637	227,804	7,967	20,000	199,837	—
Illinois	13,000	14,104	—	—	5,504	21,600	6,000	—	15,600	—
Indiana	14,556,916	124,304	2,385	1,213	276,986	14,407,832	13,959,636	210,292	211,035	26,869
Iowa	1,379,480	69,775	9,000	7,896	88,000	1,378,151	1,295,122	—	73,000	10,029
Kansas	23,481,233	532,638	722,859	—	759,210	23,977,520	18,909,691	3,490,004	1,577,825	—
Kentucky	168,469	14,490	11,705	10,461	22,138	182,987	121,502	—	45,876	15,609
Louisiana	2,452,760	54,413	52,423	—	55,260	2,504,336	1,743,948	464,632	295,756	—
Maine	700,510	189,244	1,966	1,575	40,690	852,605	485,030	337,121	28,879	1,575
Mexico	5,990,283	(—)214,670	108,930	989	279,171	5,606,361	2,824,102	1,991,862	786,557	3,840
New York	64,900	4,098	—	3,073	4,456	67,615	59,720	—	725	7,170
Ohio	611,200	57,780	7,880	13,325	60,732	629,453	542,608	—	38,500	48,345
Pennsylvania	11,350,864	447,543	208,636	(—)283	674,315	11,332,445	7,660,624	1,125,136	2,534,088	12,597
South Carolina	483,063	182,967	12,000	13,972	74,592	617,410	530,721	—	45,750	40,939
Texas	90,025,566	6,563,060	1,830,349	—	2,710,422	95,708,553	68,663,367	16,725,023	10,320,163	—
Virginia	66,670	—	10,000	—	6,872	69,798	69,798	—	—	—
West Virginia	1,780,735	123,462	37,000	1,970	206,000	1,737,167	1,622,235	—	89,500	25,432
Wyoming	1,191,788	363,063	588,067	—	49,178	2,093,740	927,796	257,308	908,636	—
Other States	1,975	5,683	3,000	—	305	10,353	7,993	—	2,360	—
Total	165,926,914	9,769,483	4,129,089	51,482	6,007,628	173,869,340	123,394,514	27,877,038	22,391,913	205,875

^aIncludes Alabama, Florida, Missouri, Nebraska and Virginia.

^bExcludes shrinkage caused by natural gas liquids recovery.

^cThe net difference between gas stored in and gas withdrawn from underground storage reservoirs.

^dNet production equals gross withdrawals less gas injected into underground reservoirs; changes in underground storage are excluded.

^eNon-associated gas is free gas not in contact with crude oil in the reservoirs.

^fAssociated gas is free gas in contact with crude oil in the reservoirs.

^gDissolved gas is gas in solution with crude oil in the reservoirs.

^hGas held in underground reservoirs for storage purposes only.

TABLE 2—ESTIMATED PROVED RECOVERABLE RESERVES OF NATURAL GAS LIQUIDS (a) IN THE UNITED STATES

	Reserves as of Dec. 31, 1947	CHANGES IN RESERVES DURING 1948			RESERVES AS OF DECEMBER 31, 1948			
		Extensions and Revisions	Discoveries of New Fields in Old Pools	Net Production	Total	Non- Associated	Associated	Dissolved
Arkansas	58,259	3,220	249	4,271	57,457	36,468	7,926	13,063
California	312,151	20,088	2,149	26,480	307,908	—	103,259	204,649
Colorado	7,942	27,834	537	14	36,299	537	—	35,762
Illinois	17,920	10,152	—	3,910	24,162	40	100	24,022
Indiana	65	71	—	28	108	30	—	78
Kansas	88,812	15,621	17	2,106	102,344	97,695	2,539	2,110
Kentucky	15,344	410	206	1,559	14,401	14,401 ^b	—	—
Louisiana	462,814	67,206	16,113	22,037	524,096	382,319	95,908	45,869
Michigan	1,065	53	59	111	1,066	607	—	459
Mississippi	58,659	721	942	2,758	57,564	24,563	27,641	5,360
Montana	1,360	2,840	—	200	4,000	—	4,000	—
New Mexico	85,922	(—)5,756	4,343	4,261	80,247	23,879	30,902	25,466
Ohio	1,736	70	9	151	1,664	1,664 ^b	—	—
Oklahoma	155,003	53,685	8,225	16,525	200,388	95,869	16,436	88,083
Pennsylvania	2,236	467	233	291	2,645	2,645 ^b	—	—
Texas	1,957,063	180,126	31,204	93,719	2,074,674	1,314,800	297,052	462,822
Utah	200	—	30	21	209	209	—	—
West Virginia	17,521	1,076	359	3,742	15,214	15,214 ^b	—	—
Wyoming	9,900	27,971	—	1,564	36,307	12,191	—	24,116
Miscellaneous ^a	3	19	9	1	30	24	—	6
Total	3,253,975	405,874	64,683	183,749	3,540,783	2,023,155	585,763	931,865

^aIncludes condensate, natural gasoline and liquefied petroleum gas.^bNot allocated by types, but occurring principally in column shown.^cIncludes Alabama, Florida, Missouri, Nebraska, New York and Virginia.

TABLE 3—SUMMARY OF ANNUAL ESTIMATES OF NATURAL GAS RESERVES, DECEMBER 31, 1945—DECEMBER 31, 1948

Year	NATURAL GAS ADDED DURING YEAR						Increase Over Previous Year
	Extensions and Revisions	Discoveries of New Fields and New Pools in Old Fields	Total of Discoveries, Revisions and Extensions	Net Change in Storage	Net Production During Year	Estimated Proved Reserves as of End of Year	
1945	—	—	—	—	—	147,789,367	—
1946	(^a)	(^a)	17,729,152	(^a)	4,942,617	160,575,901	12,786,535
1947	7,570,654	3,410,170	10,980,824	(^a)	5,629,811	165,926,914	5,351,013
1948	9,769,483	4,129,089	13,898,572	51,482	6,007,628	173,869,340	7,942,426

- Oil that may become available by secondary-recovery methods from fields where such methods have not yet been applied.
- Oil that may become available through chemical processing of natural gas.
- Oil that can be made from oil shale, coal, or other substitute sources.

Proved reserves are both drilled and undrilled. The *proved drilled* reserves, in any pool, include the oil estimated to be recoverable by the production systems now in operation, whether primary or secondary, and from the area actually drilled up on the spacing pattern in vogue in that pool. The *proved undrilled* reserves, in any pool, include reserves under undrilled spacing units which are so close, and so related, to

the drilled units that there is every reasonable probability that they will produce when drilled.

In the case of new discoveries, both of new fields and of new pools (pays, reservoirs) in old fields, which are seldom fully developed in the first year and in fact for several years thereafter, the estimates of proved reserves necessarily represent but a part of the reserves which may ultimately be assigned to the new reservoirs discovered each year. For a one-well field, where development has not yet gone beyond the discovery well, the area assigned as proved is usually small in regions of complex geological conditions but may be larger where the geology is relatively simple. In a sparsely drilled pool the area between wells is considered to be proved only if the geological and

engineering data assure that such area will produce when drilled.

The total of new oil through discoveries estimated as proved in any given year is generally comparatively small, because development is usually not extensive during the first year. The total of new oil through extensions, on the other hand, is comparatively large. As knowledge of the factors affecting production and reservoir performance becomes available, and as these factors are studied, reserves in older fields can be estimated with greater precision and revised accordingly. Therefore, the total quantity of the new proved reserves for the year includes the oil from discoveries, extensions and revisions of previous estimates.

The committee again wishes especially to stress the fact that its estimates of proved (Continued on page 44)

Advertising—promotion spearhead

For some years, it has been fashionable for various individuals representing the American Gas Association to tour the country speaking to gas men at great length about the importance of active sales promotion in all its phases. Most of these talks stressed time and again that members of this venerable industry must realize the need for forceful sales effort. Judging by the spotty sales results reported in 1948 by various gas companies over the country as a whole, I'm sure some of these speakers must wonder whether or not their remarks and urgings haven't fallen on semi-deaf ears.

I am sure that everyone knows or realizes that in 1933, 14 gas ranges were sold for every electric range. I'm sure you know that last year 1.8 gas ranges

By WILLIAM B. HEWSON*

Assistant Vice-President
The Brooklyn Union Gas Co.
Brooklyn, N. Y.

were sold for every electric range and that as far as automatic water heaters are concerned the ratio was only 1.5 to 1 in favor of gas. The battle of the fuels has most obviously been joined for some time. Only the most ostrich-like individuals in our business can possibly be oblivious to it.

As a further indication of the situation, electric appliance manufacturers are going to do more advertising and spend more money than they ever have before. Just scan a few national magazines or daily newspapers and see the beginnings for yourself. And that isn't

all! The Edison Electric Institute has launched a campaign whose basic aim is to sell the electric way of living—through a softening-up process designed to condition the minds of the general public away from other fuels—particularly ours.

Do you wonder just what they hope to gain by snatching the cooking business from the gas industry? In their own words it's simply this: "Electrifying every kitchen will mean 35 billion dollars worth of appliance business to the electric appliance manufacturers and dealers of the United States. The sale of these appliances will then increase the annual service revenue of electric utilities by two and one-third billion dollars." Box-car figures, aren't they?

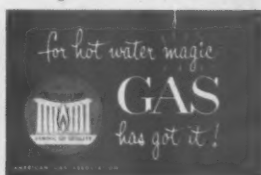
Sometimes I wonder if we have realized what a choice and juicy plum we

Abstract of paper presented March 25, 1949 at annual business conference, The New England Gas Association, in Boston, Massachusetts.



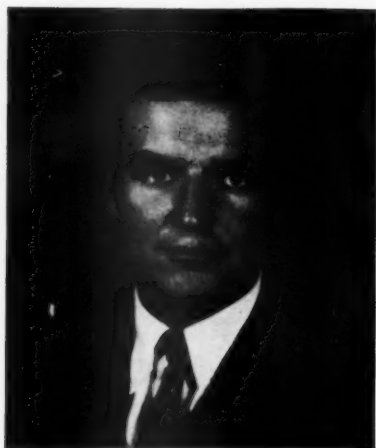
Transforms your whole way of living

—for only a few cents a day!



This opening advertisement in the American Gas Association's 1949 series on automatic gas water heating is a four-color, double page spread which

will appear in the Saturday Evening Post on May 7. Featured in this spread is an original New Freedom Gas Kitchen—Laundry combination



Mr. Hewson is an active member of the American Gas Association Committee on National Advertising

are. It strikes me that our job, yours and mine, is to make this plum so hard to digest—by doing such a wonderful job in promoting the magic flame and the dependability and value of gas as a fuel to the American public—that the electric industry will have to look to other fruits to satisfy its appetite.

A major project in the softening-up process that I have mentioned is the new

Electric Kitchen Program. This is to be the first phase in a powerful national consumer activity "to sell a method of living—the electric way."

In this program, E.E.I. hopes to enlist all branches of the electric industry—utility, manufacturer, wholesaler, and retailer. They have a strong slogan "Of Course—It's Electric." They hope every national advertiser of any kitchen product will eventually use this in his own advertising copy.

All the usual paraphernalia which accompanies such campaigns will be used to hammer away at the basic theme—selling the electrical way of living over and over again. It is because this campaign doesn't push specific appliances or branches that I have called it a softening-up process rather than an active merchandising campaign.

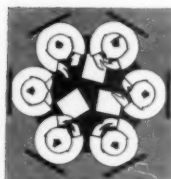
I wonder if we haven't educated our competition a bit too much. These integrated programs are something which we in the gas industry have pioneered and really supported—to such an extent, in fact, that *Retailing Daily* chooses to say "It (in this case the 1948 'CP' range program) was a seldom-achieved example of integration and coordination by all segments of an industry

working hand in glove with a trade association."

The fact that our competitors are flatter us by borrowing our stuff is a good reason why we should keep on hammering away at our goals.

The gas industry can act as a unit and if our industry-action has stirred up this electric kitchen program, it is our cue—nationally and as individual companies—to follow through with more of the same hard-hitting, aggressive promotion. By this method we make the gas market an indigestible plum.

And A. G. A. 's doing just that! The General Promotional Planning Committee is still faced squarely up to its responsibilities under the PAR Plan. While it was true that sales of automatic gas ranges built to "CP" standards increased last year over the year before by 300 percent and the sales of all gas ranges increased by 15 percent, the best promotional minds in our business recognized a time-worn and time-proven advertising principle—"repetition convinces." Only repetition of the basic truths day after day and month after month can possibly keep the benefits and desirability of (Continued on page 46)



Industrial relations round-table

Prepared by
A. G. A. Personnel Committee

● Two Articles of interest to personnel men discuss the human relations problems in industry. "If I Had It To Do Over," in the February issue of *Forbes* magazine, and reprinted on page 5, March 1949 A.G.A. MONTHLY, is an account of an interview with Louis Ruthenburg, president, Servel, Inc. "Management of Men," in the February issue of *Fortune*, seems to prove its thesis that "management and labor are slowly learning that the price of good industrial relations is emotional re-education."

● The discussions and communications section of the January 1949 issue of *Industrial and Labor Review* (Cornell University) carries two very interesting and thought provoking articles. One is "Pension and Retirement Plans as a Subject of Collective Bargaining" by Vernon H. Jensen, and the other is "Employee Morale: Analyses of Absence Records and Opinion Polls" by King Mac-

Rury. Included in this same issue is a section listing and describing briefly the industrial relations activities and courses offered by some of the larger colleges and universities.

● Refusal to bargain with a union regarding their pension plan during the term of a contract, recently was ruled by a N.L.R.B. examiner in the Allied Mills case to be a refusal to bargain and, therefore, an unfair labor practice. The ruling concluded that items mentioned in the contract are settled for the duration of the contract, but subjects relating to terms and conditions of work not mentioned in the contract are proper subjects for negotiation at any time.

● The National Planning Association has published a booklet entitled "Why I Am In The Labor Movement." The answers of 14 prominent labor leaders are brought together in this booklet (NPA Special Report No. 20), which may be obtained at \$1.00 a copy from the National Planning Association, 800 21st Street, N.W., Washington 6, D. C.

● Overtime compensation due under the Fair Labor Standards Act of 1938 has been a matter of primary concern to gas utilities since the U. S. Supreme Court's decision in the Bay Ridge and Huron "overtime on overtime" cases. The House of Representatives has now passed the Lesinski Bill (H. R. 858) which gives the stevedore and building construction industries relief from overtime on overtime, but does not give any relief to other industries. The Senate is now considering a companion bill (S. 336) which has a broader coverage. Representatives of the utilities industry have presented arguments to the Senate subcommittee urging that the industry be given relief from the effects of the Supreme Court's "overtime on overtime" decision.

● The National Labor Relations Act does not prevent state laws from outlawing intermittent work stoppages by unions. This ruling has been upheld by the U. S. Supreme Court in a five to four decision in a case involving the Wisconsin Employment

(Continued on page 25)

*Southern California training plan
increases value of street department employees*

Training the "forgotten man"

By H. M. DWIGHT

*Supervising Engineer
Southern California Gas Co.,
Los Angeles, Calif.*

Until recently the street department employee was the "forgotten man" of the gas industry—in many cases calloused hands were a better recommendation than a college degree. To the public he was the fellow with the strong back and limited intelligence who wielded a pick and shovel, tearing up streets and lawns with little regard for the comfort and convenience of others.

Past methods have now given way to modern engineering practices, and the hand tools that caused the street department worker to be known generally as the "ditch digger" have been replaced largely by power-operated equipment that does the job in a fraction of the time formerly required. Welding has replaced the threaded or mechanical joint for most underground pipe work, and boring has been substituted wherever practical for pavement breaking and trenching. The old practice of bucking gas when making tie-ins or extensions has been eliminated by the use of pressure control devices which remove many of the hazards once thought a necessary part of any gas man's job. The development of an improved training program was a natural outgrowth of this evolution in construction methods.

A prospective street department employee, in order to meet present day standards and compete with fellow-workmen for higher level jobs, must have the following minimum qualifications: (1) ability to read and to write

legibly, (2) ability to understand and give instruction, (3) ability to do simple problems in mathematics, (4) some mechanical aptitude, and (5) ability to work harmoniously with other employees.

In addition, he must be physically fit to the extent that he can perform the more difficult physical requirements of the job.

An important feature of a successful

training program is a probationary period during which the new employee has an opportunity to "get his feet on the ground," size up the company and the job, and in turn be observed by his supervisor. Pre-employment and aptitude tests are useful in eliminating obvious misfits, but only job performance will tell whether an inexperienced man will fit into a particular line of work.

Another requirement of a successful



Instructor inspecting pneumatic tools used by trainees in gas company's street department

Abstract of paper presented at A. G. A. Distribution, Motor Vehicle and Corrosion Conference in Cincinnati, Ohio, April 4-6, 1949.

training program is proper selection and qualification of candidates for training and upgrading from one classification to the next higher one.

In order to provide a sound and uniform basis on which to judge an employee's qualifications for promotion, a

many problems encountered in the field, they appreciate the value of thorough job training and talk the language of the men they are instructing. In the second place, the instructors themselves learn while they are instructing and the experience develops their ability as leaders,

training is followed closely by the district supervisors and an effort is made to vary his assignment from time to time in order to permit him to broaden his knowledge of our operations. In order to attain some degree of uniformity in the indoctrination program, to assure basic training in all of the duties of his classification, and to permit periodic checkups by the district foreman, a record is maintained by the crew leader of the new man's progress in training. This record also serves as a guide for other crew leaders if the new employee is transferred from one crew to another.

Upon completion of his preliminary field training and qualification by test for further instruction, the candidate is offered classroom training. All classes except that in welding are limited to approximately six students in order that the instructor may give considerable individual attention to each trainee. Sufficient equipment and personnel are available at the welding school to handle classes of as many as 16 students.



series of tests was prepared. These included elementary pre-training examinations to determine the candidate's ability to read, write, perform simple arithmetical problems and understand the terms pertaining to the type of work involved. Also included were examinations at the conclusion of each phase of training. Each candidate must make a passing grade in the pre-training test before being admitted to the training class and each trainee must meet required standards (written and by demonstration) before becoming eligible for promotion to the next higher classification. In this manner individuals' opinions are replaced by objective tests of performance.

The last, but certainly not the least, of the basic requirements for an adequate training program is a competent and well-trained group of instructors. Much of the credit for the success of our efforts along this line is due to the training supervisor and his staff of assistants, most of whom are former street department employees with years of experience in the various distribution operations.

The assignment of these employees as instructors has a dual advantage. First, as a result of their experience they have firsthand knowledge of the work and the



Classroom training emphasizes job record keeping (upper left) and welding (above)

making them desirable material for supervisory positions in the operating organization.

The training program developed by the Southern California Gas Company consists, basically, of the following elements:

- (1) New employee indoctrination
- (2) Mechanical operations
- (3) Job record keeping
- (4) Welding
- (5) Pipe Locator operation
- (6) Written instructions and follow-up.

The new employee's progress in basic

During his basic training in the field, the new employee is able to observe various mechanical operations and assists in performing some of them.

Mechanical training classes deal largely with the many problems of pressure control—the installation, repair or removal of fittings or sections of pipe by methods which prevent the escape of gas during the operation. The extent of this work is illustrated by the number of tools and the different types of fittings with which the workman must be familiar. For example, we have on our mains approximately 20 different types

of service connections which are found in as many as five different sizes. A different tool or procedure is required for the installation or removal of each of these connections. In addition, our operations involve pressures ranging from a few inches of water to several hundred pounds, and an understanding of the correct and safe procedure for each pressure range is important.

Throughout the course, an effort is made to teach students the principles involved and the reason for each step in the operation, as well as the actual application of the different types of equipment, so that they may adapt their knowledge to the peculiarities of any condition in the field. All operations relating to service connections and pressure control work are performed in the training class on live lines with pressures ranging from three to 25 p.s.i.

Other subjects included in the mechanical training course are: pipe fitting instruction; construction of meter assemblies; use, care and lubrication of

those of most private corporations.

Today, job record keeping is one of the important phases of our street department training program. Each new employee, in order to qualify for promotion to any classification above the starting level of helper, must learn the elements of field accounting. Each successive promotion involves a review of and additional training in job record keeping.

One of the important adjuncts of the record keeping class, and the key to the success that has been achieved in this field, is a forms manual prepared by the training department including the many forms with which distribution workmen must be familiar in order to interpret their assignments and to report their accomplishments correctly.

The street department records manual includes completed samples of all required forms, together with step-by-step instructions for preparing them. It is indexed alphabetically and also by type of job. This manual is used as a text book

have had a limited amount of instruction or experience in welding either at school or on another job. In order to take advantage of previously acquired knowledge of this work, as well as to encourage employees to place themselves in line for promotion by going to night schools or trade schools, an order of preference was established for the selection of candidates, as follows:

Group Number	Description
1	Employees who can pass the qualifying fitter-welder tests. (General qualifications and welding ability).
2	New hirings who can pass fitter-welder tests. (General qualifications and welding ability).
3	Employees who can pass an elementary welding test and the test for general requirements.
4	New employees who can pass an elementary welding test and the test for general requirements.
5	Employees with no fitter-welder training who express a desire to train for fitter-welders, and who can pass the test for general requirements.
6	New employees with no fitter-welder training or experience, who wish to be employed as helpers while training for fitter-welders and can pass the test for general requirements.

Candidates who have had some previous training or experience are given only the additional training necessary to qualify them for the various welding operations required in our work. Those who are entirely inexperienced are given a complete course of instruction extending over a period of as much as eight weeks, if necessary. This begins with a lecture and demonstration on safety, covering the approved methods of using welding equipment and safe welding practices in general, and carries on through the setting up and adjusting of equipment, cutting, beveling, "tack" welding, butt welding in both rolling and overhead positions, fillet welding, hard soldering of copper pipe, brazing and finally, laying out angles and the more commonly used field fabricated fittings.

The time devoted to each step varies considerably, depending to a considerable extent upon the aptitude of the individual student. If the trainee fails to show reasonable progress or diligence during the training period he may be disqualified. The maximum time allowed for satis- (Continued on page 30)



Pipe locator training class which follows preliminary field training and student testing

pneumatic tools; use and installation of various leak clamps, and operation and care of the combustible gas indicator. This instruction is given to all street department field men from crewman to district foreman and has been found useful in training young engineers and other employees whose work is related to that of the street department.

To the operating man, record keeping or accounting is the "tail that wags the dog," and there is no doubt that public utilities, because of their nature, are obliged to prepare and maintain records far more complex and voluminous than

in the training classes, and the instruction is directed toward an understanding of fundamentals and use of the forms manual rather than the complete preparation of each form in the book.

Welding was the first of the various phases of street department work in which formalized training was offered to our employees. During and after the war, qualified pipeline welders were not to be found among our newer employees or among applicants for jobs in our department, so it became necessary to train our own welders.

Some candidates for welder training



A.G.A. research attacks major gas problems

Since the inception of the PAR Plan five years ago, the gas industry has supplied to its member companies, manufacturers and the public a mass of technical information which has played a prominent part in the continuous upgrading of appliances, increasingly higher levels of gas service, and greater economy in gas production.

Many projects have been successful to an amazing degree, and their results have been put to an immediate and practical use. Other projects have stimulated further work along parallel lines. Studies of catalytic reforming already have resulted in the installation of several novel plants to help the industry meet peak loads. Work on high B.t.u. oil gas has developed a process offering large savings in cost of fuel and plant equipment, together with increased thermal capacity.

Research in cooking, water heating, central heating, direct space heating,

summer air conditioning and general utilization, has provided a flow of data enabling the industry to improve still further the quality of gas appliance performance. Investigations of natural gas hydrates have produced important data leading to increased efficiency in natural gas delivery.

Responsibility for directing this well-integrated program has fallen upon committees of the American Gas Association which have been staffed during the past year by top-flight technical experts in more than 100 companies in 22 states. The work of these groups was implemented by the full-time staffs of 12 scientific institutions, including the A. G. A. Testing Laboratories, Institute of Gas Technology, colleges, Governmental and other agencies.

Not content with the important strides it has made in the past, the gas industry is continuing its current research program with a total of 54 projects under three major divisions of gas production, utilization (domestic, commercial and industrial) and gen-

eral technical research. This month the MONTHLY makes available to the industry for the first time, the complete list of research projects now being conducted under the PAR program. Nearly every aspect of the gas industry is covered by these studies.

Suggestions for additional problems that might be added to the research program should be made direct to the chairman of the appropriate committees.

Gas production research projects

(Sponsored by A. G. A. Gas Production Research Committee, E. G. Boyer, Philadelphia Electric Co., chairman.)

- Catalytic Reforming Process
Institute of Gas Technology and Philadelphia Electric Company
- Reactions of Oxygen Steam and Carbon
Institute of Gas Technology
- Catalysts for Gaseous Reactions
Institute of Gas Technology
- Fluidized Gasification
Institute of Gas Technology
- Evaluation of Oils for Carburetion
Institute of Gas Technology
- Continuous Coal Gasification
Institute of Gas Technology
- Organic Sulphur Removal
Institute of Gas Technology
- Mechanism of Water Gas Reaction
Battelle Memorial Institute
- Tar Investigation
Pennsylvania State College



Hall High B.t.u. Oil-Gas Process
*Consolidated Gas Electric Light
 & Power Co. of Baltimore*
 Mixed Gas Interchangeability Investigation
A. G. A. Laboratories
 Gas Analysis Investigation
National Bureau of Standards

Domestic gas research projects

(Sponsored by A. G. A. Committee on Domestic Gas Research, R. J. Rutherford, Worcester Gas Light Co., Worcester, Mass., chairman.)

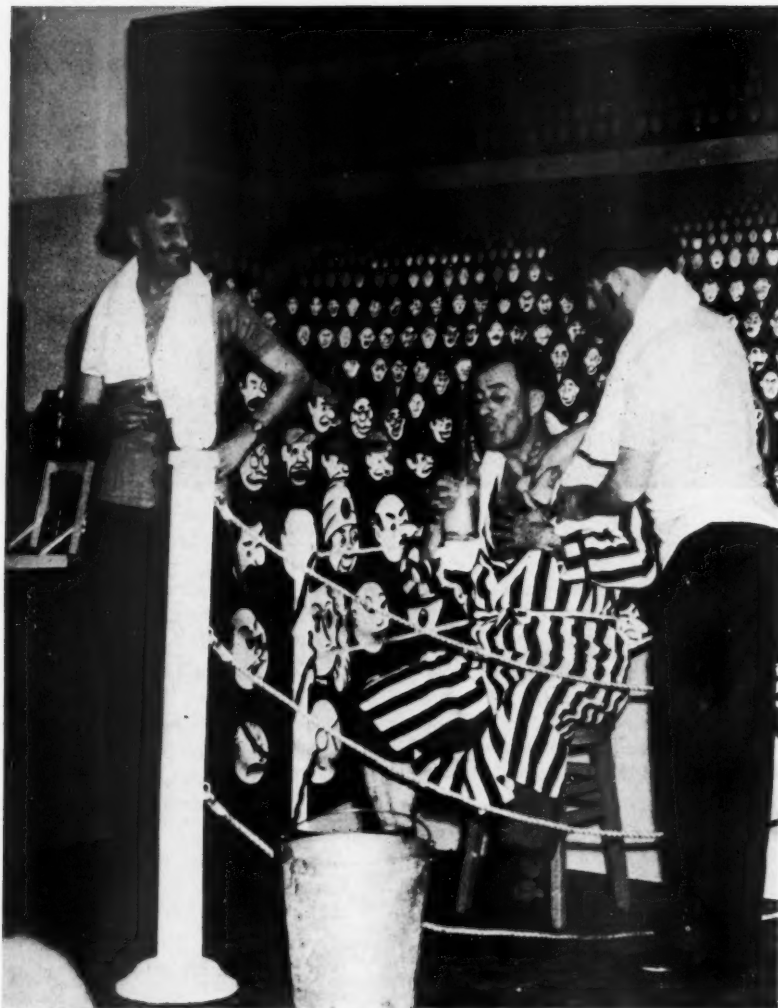
Methods of Kitchen Ventilation
A. G. A. Testing Laboratories
 Home Humidity Control
Purdue Research Foundation
 Factors Affecting Height of Gas Range Grates
A.G.A. Testing Laboratories
 Comparative Study of Various Methods of Cooking
A. G. A. Testing Laboratories
 Longevity and Applicability of Thermal Elements Used in Automatic Gas Pilots for Gas Water Heaters
A. G. A. Testing Laboratories
 Galvanic Corrosion of Dissimilar Metals as Applied to Gas Water Heater Storage Tanks
Case Institute of Technology
 Effectiveness of Temperature and Pressure Relief Devices and High Temperature Gas Shutoffs for Water Heaters
A.G.A. Testing Laboratories
 Study of Condensation in Gas Water Heaters
A.G.A. Testing Laboratories

Fundamentals of Heat Transfer in Central Space Heating Furnaces
A. G. A. Testing Laboratories
 Gas Operated Summer-Winter Hookups Extension — Study of Performance Characteristics of Gas Boilers Equipped for Hot Water and Space Heating Services
A.G.A. Testing Laboratories
 Corrosion, Oxidation and Deterioration of Metals Under the Influence of Products of Combustion of Gaseous Fuels
Battelle Memorial Institute
 General Study of Performance of Central Heating Gas Furnaces Under Conditions of Varying Gas Inputs
A. G. A. Testing Laboratories
 Effects on Combustion and Performance of Central Heating Furnaces and Boilers Resulting from Installation in Confined Spaces
A. G. A. Testing Laboratories
 Investigation of Factors that Contribute to Maximum Comfort Conditions in Houses Heated with Gas
University of Illinois
 Venting Gas Direct Heaters When No Chimney Connections Are Available
Purdue Research Foundation
 Effect of Ambient Temperatures and Pressures on Primary Air Injection, Flame, and Other Gas Burner Operating Characteristics
A. G. A. Testing Laboratories
 Effect of Gas Flame Impingement on Combustion Characteristics
A. G. A. Testing Laboratories
 Pilot Design, Construction, Performance
A.G.A. Testing Laboratories

Causes and Prevention of Closure of Oven Burner Ports
A. G. A. Testing Laboratories
 Range Top Burner Ignition at Reduced Gas Input Rates
A. G. A. Testing Laboratories
 Study of the Use of Forced Combustion for Domestic Gas Cooking
Institute of Gas Technology
 Fundamental Study of Large Single Port Atmospheric Gas Burners with Particular Reference to Flashback Tendencies
A. G. A. Testing Laboratories
 Study of Design Factors to Provide Burner Flexibility Without Readjustment When Operated on Various Base and Peak Load Gases
A. G. A. Testing Laboratories
 Study of Fundamentals of Design of Non-Primary Aerated Blue Flame Gas Burners
A.G.A. Testing Laboratories
 General Classification of Projected Research Needs in Atmospheric Gas Burners and Combustion
A. G. A. Testing Laboratories

Industrial and commercial gas research projects

(Sponsored by A. G. A. Committee on Industrial and Commercial Gas Research, Lester T. Potter, Lone Star Gas Co., chairman.)
 Forced Combustion for Commercial Cooking
Selas Corporation of America
 (Continued on page 45)



Boisterous seconds provide laughs as they limber up John Blanchfield, dealer contact representative, for his "preliminary bout" talk during meeting outlining the 1949 "All-American Prize Fight Contest"



Utility and manufacturer participants: (Standing, l. to r.) J. A. Reynolds, domestic sales manager; J. J. Ruch, Tappan; H. H. Cuthrell, and J. E. Heyke, Jr., vice-presidents; J. F. Howley, manager, dealer relations; Andrew Tomanek, staff assistant; J. J. Deely, manager, new business department;

Donald Johnstone, Hardwick. (Seated) Clyde Wilkinson, Penfield; Carroll Rogers, Universal; Walter Irvings, Ruud; Ted Mikolasy, Bryant; George Hutter, A. O. Smith; Charles Houseman, Magic Chef; Charles Richardson, Roper; Lawrence Voightsberger, Quality. The promotion opened in March

You've gotta

One of the most powerful local promotions ever attempted by a utility has been launched by The Brooklyn Union Gas Company as an important feature of the company's centennial celebration in 1949. Last year The Brooklyn Union Gas Company broke its own all-time record by selling \$5 million worth of appliances, and sales are expected to reach the \$6 million mark in 1949.

Not content with last year's outstanding record when sales of gas water heaters increased more than 48 percent over 1947, the company has organized a formidable campaign to install "fighting spirit" in every one of its 4,300 employees and the 1,200 plumber-dealers in the utility's territory. A skillfully planned "All-American Prize Fight Contest" among plumber-dealers and company salesmen is preparing the way for still greater sales of gas water heaters and gas ranges. Main goal of this drive is to sell 10,000 gas ranges in the retail market during 1949—approximately double the number sold in 1948 and nearly four times the prewar average. The contest also aims to repeat the record sales of 1948 when 7,325 gas water heaters were sold compared to

ott out and fight

3,293 sold during the average prewar year.

Gas refrigerator sales are being stimulated by "The Forty-Niner Employee Sales Contest," a parallel promotion conducted among all employees except those in the new business department. Both campaigns opened in March and will extend to September 30, 1949.

"The All-American Prize Fight Contest" opened in a blaze of sound and color during the week of March 7. "Standing room only" signs went up before the start of the preliminaries—special meetings held in each of the company's branch offices on four consecutive evenings to familiarize dealers with the contest rules and goals.

Well-paced humor, balanced between the serious business on hand and the high-powered kidding of the contest's theme started each meeting. An audience participation show of the "Hellzapoppin" variety placed primary emphasis on enjoyment with just enough promotion thrown in to make each dealer eager to participate in the contest.

Gas company sales representatives took to the stage ring clad in towels and robes and went through their paces amid the clamor of bells, the an-

tics of keystone cops and punch-drunk seconds, the hawking of candy vendors who generously dispensed their wares as they circulated through the crowd.

An authentic prize-fight note was introduced by the appearance of several boxing greats including Paul Berlenbach, former world's light heavyweight champion, and Gus Lesnevich, leading contender for the heavyweight crown recently vacated by Joe Louis. Both of these well-known boxing figures encouraged questions from the audience and answered them in detail. Movies of important fights in boxing history, refreshments for all, and door prizes for lucky dealers rounded out this novelty program.

The contest, directed by James F. Howley, manager, dealer relations, is sponsored by the new business department headed by James J. Deely and is given additional impetus by thorough coverage in *The Dealer's Choice*, the gas company's monthly dealer publication. Every available promotional medium is used to impress dealers with the fact that a liberal commission is offered for sales of specific gas ranges and gas water heaters. At the same time, each sale will pile up merit points toward a list of handsome prizes.

Backing up the gas water heater pro-

ALL-AMERICAN PRIZE FIGHT CONTEST



Showing aluminumware used as premiums for "CP" range purchasers and as door prizes for dealers



James Ruch, Tappan (left), finds chin of Paul Berlenbach, former world light heavyweight champ



Mystical Swami and his retinue arrive at one of the Brooklyn Union Gas Company's sales meetings for employees. Swami predicted successful outcome of "The Forty-Niner Employee Sales Contest"



The "standing-room-only" sign went up early during each of four plumber-dealer meetings held to introduce the "All-American Prize Fight Contest" promoting gas water heaters and gas ranges. Meetings were held at gas company's four branch offices and were packed with humor, kidding of the contest's theme, and just enough serious promotion to arouse the dealers' interest thoroughly

motion in 1949 will be two broadsides which will be delivered to one and two-family homes throughout the company's territory; new credit terms—a ten dollar down payment and 48 months to pay, a 60-day free trial offer, liberal allowances for old equipment, and increased advertising support throughout the year. The momentum of last year's highly successful water heater campaign never actually stopped and already Brooklyn Union salesmen and dealers have sold more gas water heaters during the first two months of 1949 than in the same period of 1948.

Similar broadsides on gas ranges will be delivered by hand to one to five-family homes throughout the area. Eye-catching premiums—a set of cooking utensils retailing at \$24.50—will be given to every purchaser of an automatic gas range built to "CP" standards. The company knows from past experience that this offer will stimulate the sale of better gas ranges in its territory. Increased advertising—20 advertisements in all—will make special mention of this premium for "CP" purchasers throughout the year.

"The Forty-Niner Employee Sales Contest" offers hundreds of desirable awards to employees for productive gas refrigerator leads. The prizes are in addition to cash premium awards now paid under the company's employee sales plan for leads which result in sales.

In addition to the "forty-niner" contest refrigerator sales will be supported by two broadsides, new replacement allowances and 15 advertisements on gas refrigeration throughout the year.

All refrigerator advertising will state "Liberal replacement allowance for your

old refrigerator, regardless of type."

Although its own sales force is approximately up to prewar strength, The Brooklyn Union Gas Company is well aware that nationally gas company sales personnel is far below the strength needed to meet the buyer's market. H. H. Cuthrell, vice-president and a former manager of the new business department, together with other officials, is providing the top level backing needed to make the 1949 sales contest a real success. Every possible step is being taken to make the plumber-dealer a valuable and potent ally.

Helpful points

Here are some of the points emphasized in the Brooklyn dealer promotion which company officials feel can be used to advantage by other gas utilities:

- (1) The profit opportunities in the gas appliance field.
- (2) Quick capital turn-over and minimum warehouse requirements because of the tremendous acceptance of modern gas service.
- (3) The replacement market—there are more than ten million gas ranges over ten years old.
- (4) Powerful advertising and merchandising support.
- (5) Personalized dealer relations.

The following ideas will also help utilities to build an effective dealer program:

- (6) Consider the idea, particularly in small areas, of running a picture of the dealer and his store in your own gas company advertising; point out that he is one of your dealers and that the consumer will find modern gas appliances on his sales floor.

(7) Make sure that your manufacturers supply the dealer with modern and effective display material so that the gas appliance has a prominent place on his sales floor and is not tucked away in some remote location.

(8) Get your dealers together from time-to-time; have one of your executives talk with them and announce new programs and campaigns.

(9) Consider the idea of arranging for an attractive insignia for use on the dealer's floor or in his sales window, identifying him with your company.

(10) Home service department activities may be designed to include assistance to the dealer. Schools may be held in dealers' showrooms and home service demonstrations may be provided for dealers' appliance sales in customers' homes.

(11) Many utilities are utilizing a dealer publication, edited particularly for their local retailers. The contents cover a variety of subjects, principally what is happening locally in gas appliance merchandising. Success stories and pictures of local dealers are included and such publications have been well received by the dealers.

(12) Copies of the publication *Gas Appliance Merchandising* are being sent to many dealers throughout the country through the courtesy of the local utility company.

(13) Utility companies can assist dealers in arranging effective appliance displays, including layouts, floor plans, and other promotions.

(14) Last, but by no means least, find time to get out in the territory yourself and talk with dealers, inviting them to discuss problems with you and with your dealers' representatives.



Boxer Gus Lesnevich (left) answering questions, assisted by Fred Fierro, his present trainer, and Harold Elsner, editor, Queens County Times (right)



James F. Howley, manager, dealer relations, announcing details of the "All-American Prize Fight Contest" to record crowd of Brooklyn dealers

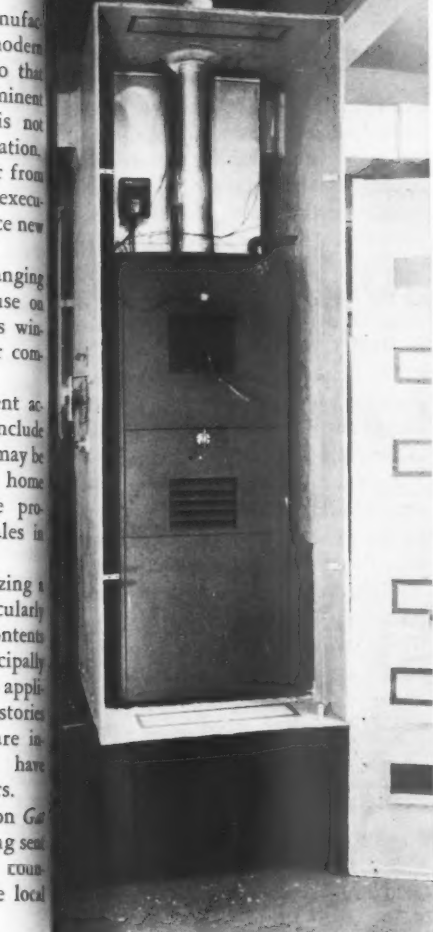


Figure 1—Interior view of test enclosure with furnace installed

Confined space furnace installations

fire, have been given attention, rather limited information has been available so far on the more technical aspects of furnace performance under such conditions. In order to provide useful data concerning installation practices to be followed for safety, for satisfactory operation and for performance, the American Gas Association Testing Laboratories were assigned the task of exploring the pertinent factors involved. Results of A PAR Plan activity, this work was sponsored by the A.G.A. Committee on Domestic Gas Research of which R. J. Rutherford, Worcester Gas Light Co., Worcester, Mass., is chairman. The results are presented in Research Bulletin 53, "Effects of Confined Space Installation on Central Gas Space Heating Equipment Performance," which was distributed to the industry in March. This bulletin is available from the A.G.A. Testing Laboratories, 1032 East 62 St., Cleveland 3, Ohio, at \$1.75 a copy.

The principal technical consideration needing close attention was found to be the necessity for providing an adequate supply of air for both combustion of the fuel gas and thorough ventilation of the enclosure. Restriction of air supply as well as various means of handling and channeling the air supply were found to be quite critical to safe operation of the unit. Such problems do not as a rule exist with typical basement installations.

In particular, allowances have to be made in confined space installations for safely handling blocked flue, downdraft, or similar flue conditions. It is also important to satisfactory operation for some provision to be made so that air open-

ings and channels cannot be effectively blocked by mops, brooms, and other portable objects which are likely to be stored in the enclosure. Specific recommendations to this effect are made in the bulletin. When these recommendations are followed, small compartments or closets should be reasonably free of operating hazards.

In conducting the investigation, a plywood enclosure was employed. Three-inch spacing was provided between the enclosure walls and the furnace jacket and also between the draft shield and adjacent wall. The enclosure was completely sealed against air leakage except for openings to supply return air to the furnace blower, and for various experimental openings for combustion air supply and ventilation of the enclosure. A plenum chamber was fitted to the warm air outlet and one-inch clearance was allowed between the plenum chamber and top of the enclosure. Two eight-by-twelve inch stub ducts extended from the sides of the plenum to outside the enclosure.

Limited studies were carried out with no direct connection made between the enclosure opening for return air and the blower compartment opening. The balance of the studies were made with return air channeled directly from the enclosure opening to the blower compartment opening by a tightly fitted metal duct. The equipment was completely instrumented to measure temperatures at important points and for chemical analyses of both the appliance flue gases and of the oxygen content of the air entering the combustion chamber of the appliance. Auxiliary blower apparatus was

By DONALD F. LEVERETT

*American Gas Association
Testing Laboratories*

A PAR activity The general trend toward smaller, tightly constructed homes, often without basements, has necessitated the development of today's small, compact gas furnace, requiring minimum space and eliminating the need for fuel storage. With the development of special furnace designs to meet the new needs, it has become increasingly common practice to make installations in confined spaces such as closets.

While the more obvious safeguards necessary, such as allowance for proper clearance from walls for safety from

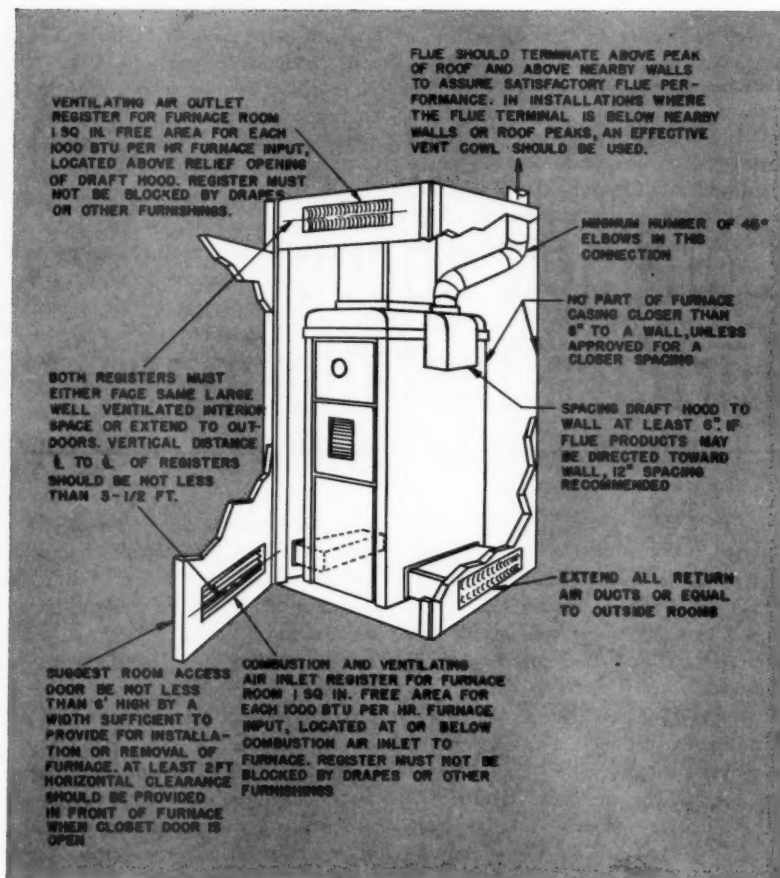


Figure 2—A. G. A. recommendations for installation of gas furnaces in small compartments or closets

connected to the flue outlet of the appliance to simulate a wide range of flue up-draft and downdraft conditions. A photograph of the enclosure with the various experimental openings investigated, together with part of the equipment employed, is shown in Figure 1.*

Early in the investigation it was found that a single opening for combustion and ventilating air near the bottom of the enclosure led to incomplete combustion under adverse flue conditions. Under such conditions it was found that products of combustion escaped from the draft hood relief opening into the enclosure. These mixed with air entering the combustion chamber so that the burner flames were affected. In some instances they were smothered out.

Even more pronounced difficulties were encountered when the return air opening of the blower compartment was

not connected to the outside of the enclosure by ductwork. In this event it was possible for the furnace blower to pull air from within the enclosure, thus creating sufficient negative pressure to cause a downdraft in the vent to which the appliance was connected. Products of combustion venting into the enclosure mixed with both combustion air and circulating air. This mixing resulted in incomplete combustion and distribution of flue products in the circulating air.

Correction of the conditions described was achieved by connecting the furnace return air inlet to the outside of the enclosure and by providing an additional opening for ventilation near the top of the enclosure. This arrangement resulted in satisfactory combustion under adverse flue conditions and performance was equal to that experienced in other types of installations.

Considerable experimental work was done to determine the optimum size, lo-

cation and spacing of openings necessary to assure maximum safety and satisfactory performance of the furnace. This experimental work included a wide range of draft conditions, restriction of flow of air to be heated, and exposure of the openings to the influence of external winds. In addition to careful checks on combustion, important data were obtained on temperatures of inside surfaces of the enclosure adjacent to the hottest parts of the furnace installation. These maximum temperatures occurred primarily around the upper portion of the plenum chamber, although high surface temperatures also were found adjacent to the draft hood in some instances.

Problems of a rather special nature were encountered where the furnace had its draft hood inside the furnace casing with the draft hood relief opening located in the front panel of the jacket. An example of such a relief opening is shown in Figure 1 the upper opening in the front panel of the furnace. It may be seen from the photograph that the louvers of this draft hood relief opening are set at an angle which tend to deflect any combustion products that might escape in a downward direction toward the adjacent enclosure wall. This made it necessary to increase the spacing between this opening and the front panel of the enclosure to 12 inches to avoid poor combustion and excessive enclosure wall surface temperatures under adverse flue conditions.

On the basis of data obtained during the extensive tests, various recommendations were formulated regarding practices to be followed in installing furnaces and boilers in confined spaces. The more important ones are illustrated in Figure 2.† It will be seen that a definite minimum area for each of two openings for combustion and ventilating air is recommended as well as the minimum spacing between them. Location of these openings with respect to the draft hood relief opening is also indicated along with other important factors which must be considered in making confined space installations.

It is believed that Research Bulletin 53 will prove helpful to gas utilities and appliance companies in informing and convincing architects and builders of the necessity for providing homes with adequate installation space and air supply for central heating equipment.

* Figure 3 in Bulletin 53.
† Figure 1 in Bulletin 53.

"Government supporting business
and business supporting government"

Business outlook

By NICHOLAS E. PETERSON

Vice-President

*The First National Bank of Boston
Boston, Mass.*

The bloom is off the boom and it would appear that there will be a moderate downward adjustment in 1949, barring drought and worsening of the international situation. The time has come for business to get its house in order for the testing period that lies ahead. Powerful competitive forces are being unleashed that will compel the sharpening of pencils to reduce costs.

While competition during the coming year will be more of a dominating influence than at any other period in the post-war era, the trend of business will in large measure be influenced by Government policies, particularly Federal spending which continues to be the principal sustaining factor.

Without the support provided by this source, the post-war readjustment would have begun long ago. Government spending of all sorts—Federal, state, and local—is running at the annual rate of \$55 billion, or about \$1,330 per family. The annual amount now being spent is equivalent to three fourths of

total national income in 1939. Federal expenditures alone are running at the annual rate of more than \$40 billion, and may go considerably higher.

On the surface it might seem that a substantial increase in Federal spending would provide the necessary supporting influence to business activity for an indefinite period. Federal expenditures, however, represent an artificial force that is not creative nor self-sustaining but must rely upon funds from borrowing or from taxation. Additional Federal expenditures may mean either deficit financing or higher tax levies. To have deficit financing in boom times would have a bad psychological effect on confidence as it would indicate that we might never again be able to get our finances on a sound basis. Moreover, it would be a "shot in the arm" when the economy is in delicate balance, and if deficits were large enough might give another upsurge to prices, aggravating the perils of inflation.

The Administration at the moment is taking the stand for a balanced budget. This would mean higher taxes, particularly for corporations and individuals in the upper income brackets. But the imposition of a substantial increase in the corporate rate would siphon off the funds that should be ploughed back into business. In consequence, higher taxes together with unfavorable legislation might so reduce business spending as to precipitate a recession.

Other segments of our economy are in a vulnerable condition because of the close tie-in of business with Government, and deserve consideration:

(1) Government finance is in the danger zone with red light flashing. Taxes of all kinds—Federal, state, and local—take more than one fourth of national income. Past experience has shown



that whenever taxes absorb more than 25 percent of national income over a period, the strain is so great on the economy as to cause a drastic change in government. Furthermore, since Governmental costs are relatively "frozen," any substantial decline in national income could imperil our narrow margin of safety.

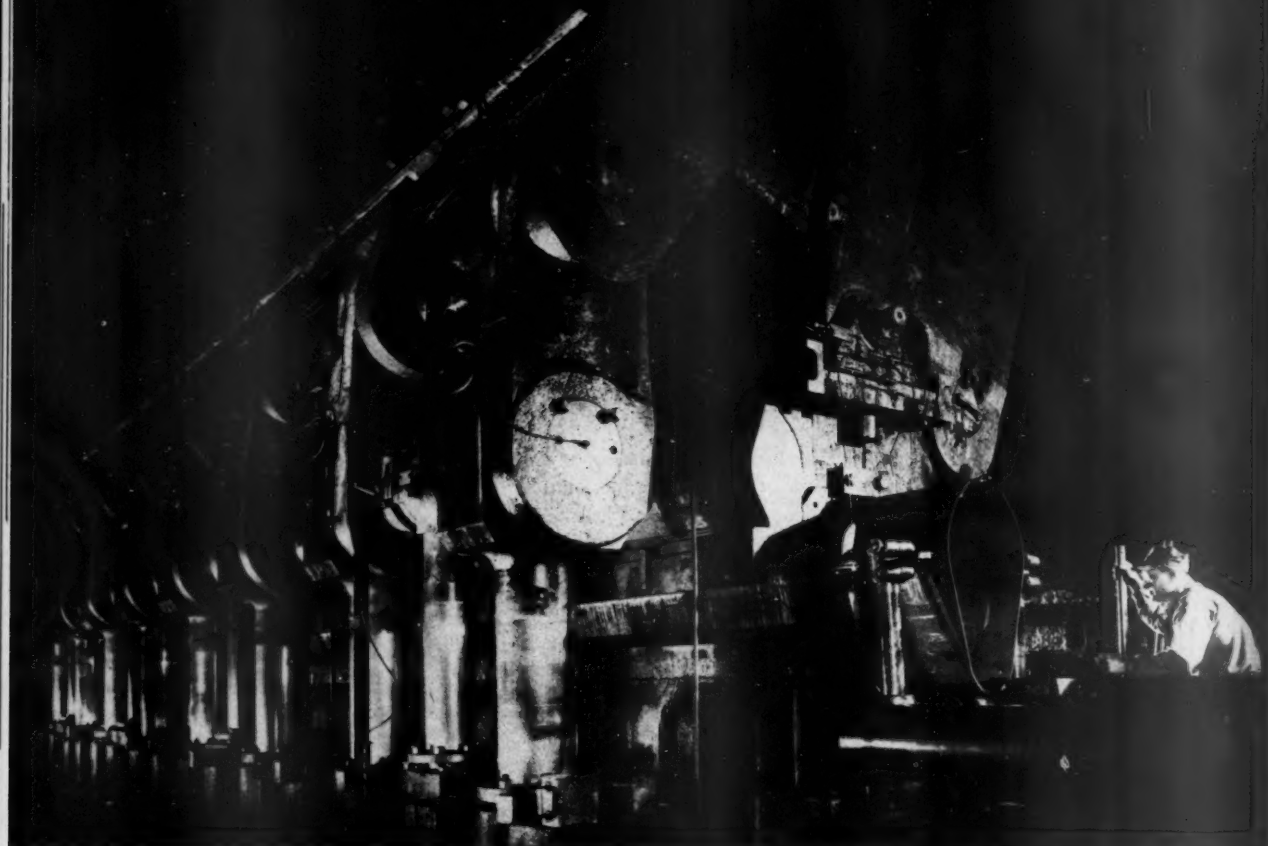
(2) The American economy is under the "oxygen tent," and is dependent upon artificial respiration provided by the Federal Government. But the Government in turn is dependent upon the economy for its support; hence, a precarious merry-go-round.

(3) Owing to the sharp rise in costs—such as wages, materials, and taxes—many firms are compelled to operate at a level twice as high as before the war in order to break even. Even a moderate decline in operations would sharply reduce profits and, in turn, revenue for the Government.

(4) Any substantial increase in the military program would intensify competition with the civilian economy for the available supply of materials and labor. At present, nearly ten percent of our productive resources are being used for military and foreign aid purposes. It has been intimated that should military expenditures exceed \$15 billion, then a system (Continued on page 41)

● The writer is editor of the "New England Letter," chairman of the New England Council's committee on economic research, a founder and former president of the Boston Economic Club, a member of the economic policy committee of the U. S. Chamber of Commerce, research council of the American Bankers Association, American Economic Association and American Statistical Association, and author of several publications.

Extracts from talk presented at annual business conferences, The New England Gas Association, in Boston, Mass., March 24, 1949.



Accompanying picture story depicts nine of the most important stages in the manufacture of pipe for new, long-distance Michigan-Wisconsin natural

gas line. Shown in action above is a giant forming press of 11,000 tons capacity shaping individual sheets of steel into roughly tubular sections

Birth of a gas line

Throughout the country the question is voiced "When do we get natural gas?" The answer can be stated in a few words: "As soon as the pipelines are built!"

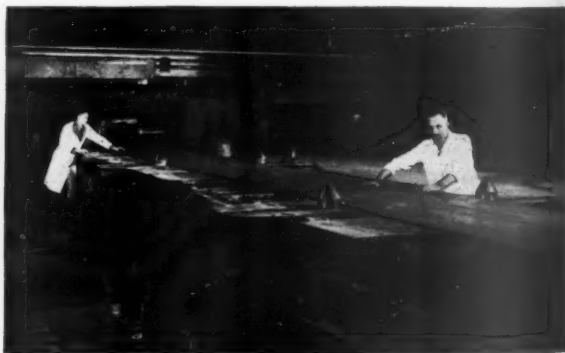
During the past 15 years 86,930 miles of natural gas pipelines have been built. Last year construction of 8,500 miles of line was authorized and projects are now pending for an

additional 14,600 miles. Huge quantities of steel are required for all these projects—2,184,585 tons are needed to complete projects under construction and some 2½ million tons, for projects awaiting approval.

Making this pipe, especially that of larger diameter, which is used for long distance transmission lines, is a big job. It takes steel and machines.



Sheets of steel in the low-carbon range being cleaned by dipping in sulfuric acid vat. Next step is a water rinse, followed by an alkali bath



Individual steel sheets being squared for trimming as they pass through the mechanical flattening rolls and then on to inspection for uniform density



Starting at the right, three hydraulic presses shape each sheet into a broad "u," into a pear shape, and at extreme left, into final form



"Push-button" conveyors move tubes to welding machines where 40-foot pipe edges are softened by million-ampere arc, then bumped together



(Above) Machines cut flash from both sides of the weld simultaneously. (Right) After ends are trimmed, slightly undersized pipe is subjected to tremendous hydraulic pressure, expanding it to correct diameter and giving



ing strength to withstand gas pressures in service. Pipe then undergoes hydrostatic test producing hoop stress of 80-90 percent of specified minimum yield, while 6½ lb. hammers strike the welds at two-foot intervals

Only half a dozen organizations in the country manufacture line pipe of 20-inch diameter and up. These include Consolidated Western Steel Corp., Republic Steel Corp., A. O. Smith Corp., National Tube Co., Youngstown Sheet & Tube Co., and Trent Tube Company. The daily production of companies making pipe of 24-inch and 30-inch diameter added together

would not equal 100 miles. Obviously, therefore, many months of continuous production are required just to make the pipe for natural gas lines.

One of the great lines now under construction is the Michigan-Wisconsin pipeline starting in Texas which not only will augment gas service in the Michigan area, but will bring long-awaited natural gas to the city of

Milwaukee. All the 24-inch pipe for this transmission line is being fabricated by A. O. Smith Corporation in Milwaukee.

"Push-button" manufacture of the pipe for this line at a daily schedule of approximately 80 cars (1,360 lengths of 40-foot pipe) is shown in the accompanying picture story.



Gondola cars, each loaded with 17 sections of 40-foot, 24-inch pipe, leaving for locations along the pipeline where it will be assembled



All that remains is to weld pipe sections together, bury the line, take it across rivers, install booster stations, and finally turn on the gas

Utility's customer accounting plan develops more efficient operation

Traveling tabulating cards

By W. M. DOLAN

Methods Supervisor
Niagara Hudson Power Corp.,
Syracuse, N. Y.



W. M. Dolan

Our customer accounting tabulating cards travel from the division office to the district office—back and forth—usually twice a month but sometimes as many as four or more times in the process

of providing account information in the district offices and balancing and statistical information in the division offices. This traveling via company-operated "pony express" routes is required because we operate a centralized customer billing system with a decentralized customer accounting system.

Our company, through its three principal subsidiaries, Buffalo Niagara Electric Corp., Central New York Power Corp., and New York Power and Light Corp., renders service to 840,000 electric customers and 290,000 gas customers, or a total of about 1,130,000 electric and gas customers in a territory covering about 20,000 square miles.

Billing centers are maintained at the three headquarters cities: Buffalo, Syracuse and Albany, with each office handling about one-third of the meters. The key punching, billing, ledger balancing, control work, cash balancing, and the preparation of revenue and statistical reports, are handled at the billing centers. All of the regular detailed bookkeeping operations, such as posting cash, prepar-

ing debit and credit adjustments, allowances, and transfer of arrears and consumption, are performed in the district offices.

Tabulating machines originally were installed in our Buffalo office in the late 1920's. This installation, I believe, was one of the first to be used for customer billing in the utility industry. At that time the punch card was used to prepare the bill and revenue figures, and certain statistics. A bill stub was used for the accounts receivable records.

In 1930, tabulating accounting machines were also installed in the Syracuse and Albany centers, and the use of tabulating cards was extended to include accounts receivable records. For approximately ten years, all bookkeeping operations were centralized in the billing centers. During this period, the district office maintained meter books and memorandum ledgers (extra bill stub) in order that required account information could be furnished promptly.

I think that everyone will agree that if accounts receivable records are centralized, the district office must be furnished with adequate information to answer customer inquiries and to follow up unpaid accounts. The form of record the district office receives from a central point is immaterial if it satisfactorily accomplishes the need of the field offices. Whatever the form of record, some additional expenditures are required to produce it.

We realize that during the period centralized accounts receivable were maintained that some duplication of effort was necessary to keep up the memorandum ledgers and that this effort did not produce as satisfactory results as though the record were the original one. In this connection, considerable thought was given to a method of putting original records into the district office at a cost at least comparable to existing costs.

This question had to be considered:

"Will we have to use key punch machines in the district—will we lose our present satisfactory control of records, etc.?" It was found that district office records and satisfactory controls could be maintained without the use of key punch machines in the field. Certain definite savings were indicated and eventually realized. To know was to act—the changeover to decentralized accounts receivable records began. Surprisingly many of the difficulties that we expected did not materialize, and the change was made in a much shorter period than was anticipated.

At present, punched card accounts receivable records are maintained in 36 offices, some of which supply electric and gas service and others, electric service only. Size of the various offices, including the headquarters offices, ranges from a high of 80,000 meters to a low of 4,300 meters.

Addressograph equipment is used in conjunction with electric accounting machines for printing and addressing bills. Our bill form consists of two parts, the customer's bill and a duplicate bill (See Figures 1 and 2). The duplicate is used as a duplicate bill on request or as a final notice for disconnection of service and collection follow-up when required.

The tabulating card used for billing and for the accounts receivable record (Figure 3) is the same as that previously

A. G. A.-E. E. I.

Spring Accounting Conference
in Detroit, Mich.

April 11-13

will be reported in the

May MONTHLY

Contributed by A. G. A. Customer Accounting Committee.

used for similar operations in the central billing office.

The district office punched card accounts receivable ledger consists of two sections, the active section or current accounts receivable cards, and the inactive section or final bill cards. Unpaid active accounts receivable cards are forwarded to the headquarters office with the meter book on the scheduled date of the monthly billing cycle, for the purpose of entering arrears on the bills. Upon completion of the billing, the current month's billing cards with arrears cards inter-sorted are returned to the district office where they are placed in proper sequence in the accounts receivable file.

At the expiration of the discount period, unpaid cards in both the active and inactive sections of the accounts receivable file are forwarded to the headquarters office for the preparation of trial balance and delinquent register. We balance all ledgers immediately after the last day's cash of the discount period has been posted, not prior to billing as many companies do, in order to obtain the trial balance listing as a by-product of the forfeited discount charging operation.

Following are some of the more important bookkeeping operations performed in the district offices:

Cash posting—Customers' payments are posted to accounts receivable file on the day following their receipt. Cash stubs are arranged en route and customer number sequence prior to posting.

The cash posting procedure consists of removing the cards from the accounts receivable file as represented by the customers' payment on the cash stub. When an account is paid in full, the corresponding card is stacked in its proper customer number order. However, when a payment is received that does not completely pay any of the cards, the date and amount of the partial payment are posted to the customer's oldest accounts receivable card and the balance is extended from the gross amount whether or not the gross amount is then due. The card is flagged with a green signal (See Figure 4) and replaced in its proper position in the ledger file. The amount of the partial payment is then recorded on a route partial payment card.

Route partial payment card—This card is a distinguishing color with the opposite corner cut and is prepared daily for each route having partial payments. The account numbers and the individual partial payments are listed in

CENTRAL NEW YORK POWER CORPORATION 200 ERIE BOULEVARD WEST, SYRACUSE 2, NEW YORK						CENTRAL NEW YORK POWER CORPORATION TEL. SYRACUSE 2-3311	
Present Reading	Previous Reading	Kw-hrs. or 100 Cu. Ft.	Code & Rate No.	Gross Amount	NET AMOUNT	Gross Amount	NET AMOUNT
84	16	68	11	3.03	2.86	3.03	2.86
KW Demand							
			11	3.03	2.86	3.03	2.86

CODE
 EL — Electric
 EE — Electric Estimated
 GS — Gas
 GE — Gas Estimated
 FA — From Former Address
 CR — Credit
 BG — Budget
 AR — Account Rendered (Please disregard if paid)

PLEASE BRING THIS BILL WHEN PAYING AT OFFICE OR AGENCIES

Service for Period **Nov. 23, 1948** **NIAGARA HUDSON** The NET AMOUNT Payable On or Before **Dec. 10, 1948**

OFFICE HOURS
 8:30 A. M. to 5 P. M.
 Monday Thru Friday

IF YOU PAY BY MAIL PLEASE ENCLOSE THIS STUB
 The GROSS AMOUNT Due After **Dec. 10, 1948**

FOLD AND DETACH HERE

CUSTOMER'S RECEIPT CASH STUB
 POST CARD BILL MAILED TO CUSTOMER

FIG. 1—CUSTOMER BILL—ACTUAL SIZE 20" x 31" (INCHES)

FINAL NOTICE COLLECTOR'S FOLLOW-UP

FINAL NOTICE				CENTRAL NEW YORK POWER CORPORATION			CENTRAL NEW YORK POWER CORPORATION		
Date	Customer No.	Gross Amount	NET AMOUNT	Code & Rate No.	Gross Amount	NET AMOUNT	Code & Rate No.	Gross Amount	NET AMOUNT
Nov. 23, 1948	1680	3.03	2.86	EL 1	3.03	2.86	EL 1	3.03	2.86
	11	3.03	2.86	11	3.03	2.86	11	3.03	2.86

According to our records, your account for service remains unpaid.
 We regret to advise you that unless this amount is paid in full on or before the date shown, service at the address shown will be discontinued.
 If service is discontinued it will be restored only after payment in full of all amounts due, together with an additional charge of \$1.00 for reconnection.
 We trust that we may receive your remittance promptly so that you may continue to receive uninterrupted service.

Service for Period **Nov. 23, 1948** The NET AMOUNT Payable On or Before **Dec. 10, 1948**

The GROSS AMOUNT Due After **Dec. 10, 1948**

CUSTOMER'S RECEIPT CASH STUB
 DUPLICATE BILL

FIG. 2—DUPLICATE BILL AND FINAL NOTICE—ACTUAL SIZE 25" x 37" (INCHES)

2810 1680 11		12		68		303		286	
NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6	NO. 7	NO. 8	NO. 9	NO. 10
2810	1680	4614	S. SALINA ST.	SYRACUSE	NOV 3	NOV 23			
3117	12								
CUSTOMER'S BILLING									
NAME	PRESENT	BILL CODE	REMARKS OR TERMS	DATE	DEBIT	CREDIT	BALANCE		
DATE	PREVIOUS	NO. BLOCKS	LATEST AMOUNT						
CONSTANT	DIFFERENCE	DAYS	NET AMOUNT						

IBM 754334

FIG. 3—ACCOUNTS RECEIVABLE CARD—ACTUAL SIZE 24" x 36" (INCHES)

FIG. 4—ACCOUNTS RECEIVABLE CARD WITH PARTIAL PAYMENT: ACTUAL SIZE 3½ X 7½ INCHES

Discount adjustments—Occasionally payments are accepted for the net amount of bills after the expiration of the discount period. In such instances, the cash stub is marked "discount allowed." When a stub so marked is received, the respective accounts receivable cards are stamped "discount" and replaced in accounts receivable file at the

Cash posting for routes in headquarters office for billing and balancing—When the route accounts receivable cards are in the headquarters billing center for billing or balancing, the cash stubs for such routes remain with the day's cash stubs and are listed in detail on route partial payment cards prepared for each of the routes concerned. A notation is made when the payment is on account, discount allowed, etc. This partial payment card is treated like any other route partial payment card and is

Forfeited discount and trial balance—Upon receipt of the unpaid accounts receivable cards in the central billing center, a trial balance and delinquent regis-

order writer is prepared (Figure 5). The gross and net amounts of the cards that have not previously been grossed are listed under respective column headings, and on a separate gross amount of these same cards along with the unpaid balances of the cards that were previously grossed are listed in the balance due column.

The amount of discount to be charged for the current month is obtained by subtracting the net column from the gross column. The trial balance total is obtained from the balance due column. The cards are then control punched so that the gross amounts will be selected in future operations.

Under this plan of handling discounts, the cards stamped "discount" actually become discount adjustment cards. The stamp indicates to the key punch operator that each card must be control punched to properly record on the trial balance and delinquent register.

If the stamp appears on a card that had been grossed previously, it indicates to the key punch operator that the discount was allowed and should be so control punched that the gross and net amounts will be listed in reverse order and eliminated from the balance due field. By reversing the listing, the discount is deducted automatically from the route total of discounts charged. Correspondingly, if the stamp appears on a card that has not been grossed, it indicates that the discount should be charged but eliminated from balance due field.

Pony express routes—As previously mentioned, our traveling tabulating cards are conveyed by company operated "pony express" trucks to and from the district offices. The cards are placed in containers which are then placed in suitcases. Both containers and suitcases were designed to meet the special requirements of the operation.

When outbound from the central billing office, the tabulating cards' traveling companions consist of bills, duplicate bills, meter books, and inter-office correspondence. On the return trip to the central billing office the contents of the suitcases are the same, with the exception that paid cash stubs are substituted for complete bills.

Nine express routes are operated—three in Buffalo, total daily mileage 438; four in Syracuse, total daily mileage 664, and two in Albany, total daily mileage 280.

Scheduled runs for all routes are made

Monday through Friday, with the exception of holidays. Most of the runs are made at night to reduce the number of days that the accounting records are away from the respective district offices. In addition to carrying the customer accounting records, the trucks carry other company records and a substantial volume of stores items.

Use of the tabulating card as a district office accounts receivable record has had

many satisfactory results. It has made the district office employee happier because he prefers to work with regular accounting records rather than to have to depend upon telephoned information or upon a memorandum record which is maintained for local information only. It has eliminated duplicate efforts and makes for a more efficient and effective operation, which put in other words, means reduced operating costs.

Meet the men behind the scenes



R. I. Highgate



H. L. Dalbeck



E. F. Rodgers



J. F. Daly

● **Materials and Supplies Subcommittee on Codification of Material and Supplies**—Chairman R. I. Highgate, Memphis Light, Gas and Water Division, Memphis, Tenn., reports that his group is studying the various systems used for classifying material and supplies. An organized discussion of various company practices is being developed for use at one of the meetings to be held at Detroit during the Spring Conference, April 11-13, 1949

● **General Accounting Subcommittee on Capitalizing Various Overhead Costs**—Chairman H. L. Dalbeck, New England Power Service Co., Boston, Mass., describes his committee's project as a summary covering the economics of capitalizing the cost of money and various overhead costs. Findings will be presented at the 1949 Spring Conference in a panel discussion. At that meeting the

group will endeavor to answer vital questions on this subject.

● **Materials and Supplies Subcommittee on Repeating Purchase Requisitions**—Chairman E. F. Rodgers, Equitable Gas Co., Pittsburgh, Pa., reports that the members of his committee are studying the use of a repeating purchase requisition and that they are trying to develop constructive material which will not be ponderous for presentation at the Detroit Conference.

● **General Accounting Subcommittee on Machine Applications for General Accounting**—Chairman J. F. Daly, Long Island Lighting Co., Mineola, N. Y., announces that his group is reviewing the introduction of machines in general accounting, the progress made in applications and possibilities for the future. The final report will be presented at the Spring Accounting Conference.

Industrial relations

(Continued from page 8)

Relations Board. In another Wisconsin case, Supreme Court has ruled, seven to two, that state laws affecting union security can be enforced provided they do not conflict with U. S. policy.

● **The danger of having communists or members of other subversive organizations in the employ of public utility companies during National emergencies**, has been recognized in a unique provision in the col-

lective bargaining contract between Consolidated Edison Co., of New York, Inc., and the union representing its employees. The contract provides that each applicant for employment shall make a statement on his application as to whether he is or is not a member of, or affiliated with any communist or subversive organization. He also is required to state that if he later joins such an organization, the fact will be disclosed to the company and the union. Present employees will be required to disclose the fact of joining such an organization.



MONDAY, MAY 9

Basic Principals

Industrial gas school



TUESDAY, MAY 10

Heavy Industrial Applications

An intensive technical and sales training course for men who promote or sell gas for heating operations in the industry will be provided at the second American Gas Association Industrial Gas School at the Hotel Severin, Indianapolis, Ind., May 9-13, 1949. New equipment and techniques in many fields have advanced the progress of gas utilization and created new opportunities to expand industrial gas sales.

Following the successful industrial gas school in 1947, the 1949 sessions are planned to provide new men with basic training for a successful career in industrial gas, and to give experienced gas men a combined refresher and advanced training course.

The five-day program will provide instruction in the utilization and sale of industrial gas covering basic principles,

heavy industrial applications, air and fluid heating, specialized processes and salesmanship. The school committee under the chairmanship of John C. Dorsey, The East Ohio Gas Co., Cleveland, has invited an impressive list of experienced lecturers to address the sessions.

A number of experts from outside the gas industry will be included on the faculty. Dr. W. L. Sibbitt, associate professor, heat transfer laboratory, Purdue University, Lafayette, Ind., an authority on heat transfer and thermodynamics, will lecture on first principles needed in the approach to heating problems. Raymond R. West, Brown Instrument Division, Minneapolis-Honeywell Regulator Co., Philadelphia, will cover the all-important phase of temperature measurement and control. S. L. Case from Battelle Memorial Institute, Columbus, Ohio, will discuss a particularly timely subject, "High Speed Heating."

School sessions have been divided

roughly into five main classifications, one of which will be covered each day.

Monday, May 9

A discussion of the various types of burners and combustion systems used on industrial gas equipment will be lead by H. F. Rehfeldt, The Peoples Gas Light & Coke Co., Chicago. Dr. W. L. Sibbitt will lecture on the basic principles of conduction, convection and radiation; heat losses and methods of heat recovery. Temperature measuring and recording devices, and the control equipment used with gas burners will be presented by Raymond R. West, Minneapolis-Honeywell Regulator Company. Concluding the first day's lectures on basic principles, D. A. Campbell, Bryant Heater Division, Affiliated Gas Equipment, Inc., Cleveland, will discuss the all-important subject of equipment needed for ignition and combustion protection on gas-fired industrial equipment.

Tuesday, May 10

Basic elements which enter into the design and construction of heat treating furnaces will be presented by Charles C. Esles, The Ohio Fuel Gas Company, Toledo. Continuing in an allied field, A. M. Thurston, The East Ohio Gas Co., Cleveland, will lecture on "Drying and Finishing Ovens," the principles of good practice and the various types of oven design for this industrial application. Next subject will be special applications that are a study in themselves. The first talk will be on "The Use of Gas in the Pottery Industry" by O. D. Todd, The Columbia Gas System, Inc., Pittsburgh. General pottery manufacturing operations and the use of gas in the ceramic field will be covered. H. H. Gieselmann, The Laclede Gas Light Co., St. Louis, Mo., will discuss vitreous furnaces and the specific problems and product requirements involved in enamel processing operations. A. D. Wilcox, Eclipse Fuel Engineering Co., Rockford, Ill., will speak on "Non-ferrous Metal Melting," describing the various types of furnaces used in the non-ferrous and low temperature metal melting fields. He will include a discussion on crucibles, pots, reverberatory furnaces and furnaces for die and permanent mold casting.

Wednesday, May 11

A leading authority on air heaters, Herman G. Rappolt, J. O. Ross Engineering Corp., New York, will discuss

A. G. A.

Sales Conference on Industrial and Commercial Gas in Nashville, Tenn.

April 5-7
will be reported in the
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their application and influence on industrial oven design. One subject that is most important to industrial gas men, especially those having contact with plants doing heat treating, is atmosphere generators and prepared atmospheres. O. E. Cullen, Surface Combustion Corp., Toledo, Ohio, will lecture on the use of this equipment in various industrial operations. W. A. Darrah, Continental Industrial Engineers, Chicago, Ill., will discuss the applications of prepared atmospheres and the results obtained through their use with specific furnaces. Maurice J. Dewey, Dewey Gas Furnace Co., Detroit, will present the basic principles of immersion heaters for water and solution tanks, and new developments for high temperature solutions, metals and salts. Types of gas-designed boilers, ratings and capacities, and the uses of steam for processing, together with recommendations for sizing the boiler to the job, will be told by P. W. Craig, Equitable Gas Co., Pittsburgh, Pa. As a companion lecture, J. I. Cormany, The Gas Service Co., Kansas City, Mo., will discuss practices and trends in converting boilers to gas firing and the problems involved with combustion space, draft, and control equipment.

Thursday, May 12

"High Speed Gas Heating," by S. L. Case, Battelle Memorial Institute, Columbus, Ohio, will be a discussion of direct flame heating and hardening by gas with comparisons to induction heating for hardening and blanking operations. Textile processing is a field for industrial gas business that has not been developed as fully as it might be. Everett V. K. Schutt, Central Hudson Gas and Electric Co., Newburgh, N. Y., will give a comprehensive lecture on this subject. Another specialized process is glass melting and forming. Rodney G. Hayler, Central Indiana Gas Co., Muncie, Ind., will describe the application of gas in

this field for melting and forming various glass products, and stress-relieving furnaces. C. H. Lekberg, Northern Indiana Public Service Co., Hammond, Ind., will lecture on the process involved and the application of gas and gas equipment for varnish cooking, paint drying, fume incineration, battery burning, mold drying, ladle heating, etc. Food processing is another important field which deserves the interest of gas men. Gas burners and equipment for bread and cracker baking, smokehouses, coffee and nut roasting, and deep fat frying will be presented by Edgar L. Harris, Public Service Electric & Gas Co., West New York, N. J. C. George Segeler, utilization engineer, American Gas Association, will again present his interesting talk on the objectives of A. G. A., the services available to member companies and individual members, and the advantages of participating in Association activities.

Friday, May 13

An important part of selling industrial gas is to have information on the characteristics of competitive fuels, their composition, advantages and disadvantages, and costs. J. E. Coleman, Pittsburgh Group Companies, Pittsburgh, Pa., will be the lecturer on this subject. "Customer Relations and Selling Tools" with suggestions for securing attention, creating interest, and closing the sale will be presented by Stanton T. Olinger, The Cincinnati Gas & Electric Co., Cincinnati, Ohio. Concluding the sales angle and the week's course, Franklin T. Rainey, The Ohio Fuel Gas Co., Columbus, Ohio, will lecture on the fundamentals of organizing sales efforts and making a successful sales presentation.

The school will close on Friday afternoon with an examination on the material presented during the course. Students will receive copies of the lectures.

Enrollment for the Industrial Gas School will be limited to 150 persons, including gas company employees, gas equipment manufacturers and industrial gas equipment dealers. Applications should be mailed to M. A. Combs, secretary, Industrial & Commercial Gas Section, American Gas Association, 420 Lexington Ave., New York 17, N. Y., before April 22, 1949. A check for \$35 covering the enrollment fee should be made to the order of the American Gas Association and included with each application. Room, board and other expenses will be paid by the registrants.



WEDNESDAY, MAY 11

*Air and
Fluid Heating*



THURSDAY, MAY 12

*Specialized
Processes*



FRIDAY, MAY 13

*Selling
Industrial Gas*



Exam

Eastern Natural speakers show the importance of coordinated industry programs

Conference hears sales plans

A bright future for gas companies which are prepared now to go out and sell was forecast by speakers during the Eastern Natural Gas Regional Sales Conference at the Hotel William Penn in Pittsburgh, March 14 and 15. The meeting was sponsored by the A. G. A. Residential Gas Section.

Beginning with the welcoming address by Conference Chairman Raymond Little, Equitable Gas Co., Pittsburgh, and carrying through to the presentation of "Our Silent Partner," new color-moving picture of The Peoples Natural Gas Co., Pittsburgh, the program stressed a determination to carry on aggressive campaigns which will retain the gas industry's leadership in the residential field.

Robert W. Hendee, president, A. G. A. and Colorado Interstate Gas Co., told the conference of his plans to sell the Association and the gas industry to the public, and outlined the promotion, advertising and research programs now being carried on by the united industry.

An interesting presentation of the leisure hours brought to housewives by modern automatic gas appliances was staged by Lois Dineen and Caroline Evans, Equitable Gas Company. Follow-

ing this skit, Stanley C. Gorman, Gas Appliance Manufacturers Association, pointed out the profit opportunities offered by the automatic gas water heater through the "Court of Flame" water heater campaign.

Cecil M. Dunn, vice-president in charge of sales, Estate Stove Co., gave a masterful presentation of the advantages of automatic gas ranges built to "CP" standards. His cartoon-and-talk offering was one of the highlights of the conference.

James M. Humphries, The Ohio Fuel Gas Co., presided at the first afternoon session, which opened with a description of the importance of home service in sales plans and campaigns. The speaker was Jessie McQueen, home service counselor, A. G. A.

Steady improvement of steel supplies, together with the rapid expansion of natural gas pipelines and improvements in manufactured gas production through the industry's research achievements, bring gas house heating to the forefront again. H. P. Morehouse, Public Service Electric & Gas Co., Newark, N. J., told the members of work now being done to prepare for the time when gas utilities will be actively promoting gas house

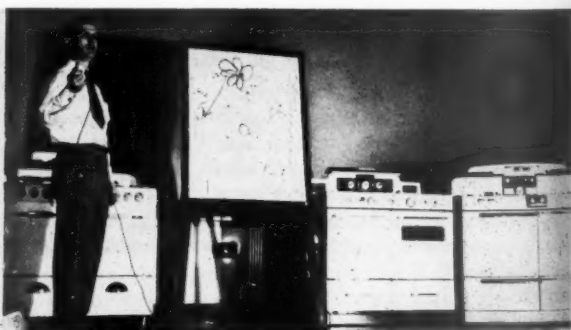
heating again throughout the industry.

Gas house heating loads have always presented an economic problem to the industry because of the peak demand on production facilities over brief periods. Delegates were informed of two new developments in the industry that are designed to level-off peak loads. Marvin Smith, Muncie Gear Works, reported on the progress made with the gas heat pumps which now have been installed in homes and in commercial outlets. By extracting heat from homes and business buildings from surrounding earth or water in winter months, and withdrawing heat from interior atmospheres and returning it to these natural sources in summer months, utilities are offered an opportunity for balance loads throughout the year. C. C. Young, The Gas Service Co., Kansas City, Mo., described possibilities of shaving peak loads offered by the new combination gas and oil burner developed by his research organization in cooperation with the Midwest Research Institute.

American business can turn boom into bloom instead of into bust, Professor Erwin H. Schell, Massachusetts Institute of Technology, told the conference. He advocated close coordination on the part



Lois Dineen and Caroline Evans, Equitable Gas Co., dramatizing the leisure hours which modern automatic gas appliances provide for the housewife



Cecil M. Dunn, Estate Stove Co., using cartoons during his talk outlining the advantages of the modern automatic gas range built to "CP" standards

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MONTHLY



Raymond Little (second from left), chairman, with George L. Scofield (left), James M. Humphries (center), and Christy Payne, Jr., who presided at sessions

of top management with the Govern-
ment, in the interests of national se-
curity, and suggested a reorganization of
sales methods, a tightening of control
over costs, and the retention of earnings
sufficient for rehabilitation of plant in
the light of today's depreciated dollars.

Christy Payne, Jr., vice-president, The
Peoples Natural Gas Co., served as
chairman of the Tuesday morning ses-
sion. His opening speaker, Frank J. Nu-
gent, president, G.A.M.A., predicted
that sales of gas ranges this year will be
75 percent above prewar levels, while
sales of other gas appliances, stimulated
by programs like the "Court of Flame"
campaign, will achieve excellent results.
Supplies now are meeting demand, he
said, and urged gas utilities and appli-
ance manufacturers to build up sales
forces until gas industry salesmen again
dominate the markets.

New appliances offer great possibi-
lities for the merchandising executives of
the industry. One of the fastest growing
loads is that created by the automatic gas
clothes dryer, according to C. H. Rippe,
Hamilton Manufacturing Company. Mr.
Rippe pointed out that research started
in 1932 has resulted in the new appli-
ance which has an estimated potential
market of 2,800,000 purchasers from
1948 through 1952.



Stanley C. Gorman, G.A.M.A., describing the impact resulting from industrywide advertising

New principles of gas incineration
were described by Dr. A. W. Gauger,
The Pennsylvania State College, State
College, Pa., who proved that it is pos-
sible to burn all types of refuse without
smoke or odors, as a result of experi-
ments now being carried on at the col-
lege. Ira J. Rapson, Michigan Consoli-
dated Gas Co., related the experiences of
his company in promoting sales of gas
incinerators now on the market. New
sales slants for meeting competition in
the gas refrigeration market were given
by Frank H. Stiening, Servel distributor
in Pittsburgh.

The importance of dealer participa-
tion in gas utility sales programs was
described by James F. Howley, manager,
dealer relations, The Brooklyn Union

Gas Company. Mr. Howley related some
of the successful achievements attained
by Brooklyn Union in this field and of-
fered a program of dealer participation
and cooperation that has brought excep-
tional results.

Point-of-sale activities, from local ad-
vertising through to store displays, form
another vital link in the merchandising
chain. W. S. Redpath, Ketchum, Mc-
Leod & Grove advertising agency, gave
an interesting oral and visual report on
some of the activities his organization
has undertaken on behalf of the Pitts-
burgh Group of natural gas companies.

Members of the Gas Appliance
Manufacturers Association sponsored
Friendship Room receptions on both
days during the conference.

Sales training at its best

AUDIO-VISUAL TRAINING AT ITS BEST—
that is the opinion of Southern Coun-
ties Gas Company sales executives con-
cerning the American Gas Association
"Residential Gas Salesmanship Course"
recently given to all of the company's
sales personnel.

Following a demonstration of portions
of the course to the company's sales su-
pervisors, they recommended that it be
given first to all members of the sales
department and later to dealers through-
out the company's territory.

In its recommendation, the committee
stated, "We feel that this course is espe-
cially timely inasmuch as we have so
many new salesmen in the field. The
sooner it can be given, the better."

Classes were held beginning January
17 and continuing through February 18,
and were attended by 110 sales people
in all of the eight operating divisions.
During that time, the six units compris-
ing the complete course were presented,

two at each half-day session.

Utilizing the most recent advances in
teaching procedures, the course combines
the "case method" with audio-visual
techniques to present the material in an
interesting and attention-compelling
manner.

Factual sales problems are proposed

A. G. A.

Mid-West Regional
Gas Sales Conference
in Chicago
March 28-30
will be reported in the
May MONTHLY



New sales slants are taught in a residential gas salesmanship course now being given to all divisions of Southern Counties Gas Company by L. R. Johnson (standing above), sales promotion representative

in the text booklets and a number of possible ways of handling them are offered. Class members are then asked to decide individually which method is best, and a group discussion ensues to bring out the various viewpoints. Following the discussion, the experience proven, best solution is demonstrated

on the screen using film strips and sound recordings. Theoretical generalities are avoided and every sales point is brought out in relation to a specific gas appliance.

Results are what count, and from that standpoint the course has been a decided success. One new salesman was heard to remark, "This week, I used some of

the sales ideas brought out in the first day's lessons, and they definitely helped my sales. They really work."

From the viewpoint of old hands at the selling game, the course is just as enthusiastically endorsed. One division sales supervisor with more than a quarter century of sales experience with Southern Counties commented that, "As far as sales training aids are concerned, I think this course is the best I have ever seen, particularly for new and inexperienced sales personnel. The methods presented have been proven by experience. Immediately following the first lesson, our sales showed a substantial increase."

The Residential Gas Salesmanship Course was prepared under the direction of the Committee on Selection and Training of Sales Personnel, A.G.A. Residential Gas Section. It is being presented at Southern Counties Gas Company by L. R. Johnson, sales promotion representative.

The "forgotten man"

(Continued from page 11)

factory completion of the course is 320 hours.

Since much of our work is performed on live gas lines, each welding trainee must learn to perform the many welding operations not only in all positions and on various sizes of pipe, but also to do this work on gas lines under pressure. Each trainee is required to burn through a pipe carrying between ten and 25 p.s.i. gas pressure and then to learn to repair the burn-through. This is repeated until the student learns that when the job is approached properly there is nothing to fear and he is able to perform this work with confidence.

After the trainee is released to assume his field duties his work is checked periodically. If it is found that the quality of his welding will not pass inspection he is given instruction on the job or, if necessary, a brush-up welding course. In this manner we are reasonably sure of continuous quality in pipeline welding.

One of the indispensable tools of the modern street department crew is the pipe locator. In order to take full advantage of this modern "magic wand", training in the use of radio frequency type pipe locators is given to all crew leaders and other workmen to whom

this work is assigned.

Classroom training of street department employees is supplemented with written instructions and job breakdown sheets of mechanical operations, both of which are distributed to all crew leaders for their use when instructing new men on the job and to encourage correct and uniform methods.

Another closely related function of the training group is tool utilization and standardization. A representative of the training department makes on-the-job inspection of tools and equipment in the presence of the district foreman, and arrangements are made for repairing or replacing faulty, damaged or obsolete items.

Required instruction

Whenever there is evidence of tool wear attributable to improper use or indication of inability to recognize the need of repair or exchange, required instruction is given on the job at the time of the tool inspection. As this training representative visits field crews in all parts of our rather extensive system, he is able to gather new ideas from the various districts, pass them along to crews in other areas, and incorporate them in the training program if desirable. He also carries on a continuous

study of tool requirements in an effort to maintain an adequate and standardized complement of tools for each type of crew.

The training group correlates its efforts closely with those of the standards group which studies work procedures, tools and equipment with the objective of improving current methods or developing new ones which permit better or more economical performance. Thus the training program not only teaches our employees how to perform the various operations, but incorporates the best procedures and safety practices currently known.

Although it is difficult to measure the results of training in dollars and cents, the successful performance by relatively new men of operations which formerly were assigned only to "old timers" is an indication of the program's effectiveness.

Since the end of the war we have more than doubled our field forces. Many of our present crew leaders were hired since the war. Classroom training has enabled us to accelerate the progress of these newer men, to increase their versatility, to standardize and improve work methods and procedures, to develop a greater consciousness and appreciation of safety and, in general, to increase their over-all value to the company and thus to themselves.

New York conference will cover most recent developments in the chemical and production fields

Production program powerful



F. E. Vandaveer (left) and H. C. Jones, chairmen, A. G. A. Chemical and Gas Production Committees

A broad program of compelling interest to operating men of the gas industry will be presented at the Joint Production and Chemical Conference of the Technical Section, May 23-25, at the Hotel New Yorker, New York. The three-day program includes the most timely and recent developments in engineering, chemistry, research and gas production techniques.

Staged by the Association's Gas Production and Chemical Committees, the conference will be composed of two morning and one afternoon general sessions, parallel sessions of interest to both groups, and a series of luncheon conferences on two afternoons. H. C. Jones, New England Power Service Co., Boston, chairman, A. G. A. Gas

Production Committee, will alternate as presiding officer with Dr. F. E. Vandaveer, The East Ohio Gas Co., Cleveland, chairman, A. G. A. Chemical Committee.

At the first general session on Monday morning, H. Carl Wolf, A. G. A. managing director, will speak on work of the Association. A feature of this session will be an address by Hugh H. Cuthrell, vice-president, The Brooklyn Union Gas Co., and first vice-president, A. G. A. As chairman of the Manufactured Gas Department, Mr. Cuthrell has kept his finger on trends in this field. He will be followed by E. S. Pettyjohn, director, Institute of Gas Technology, whose topic "Potential Use of Catalytic and Thermal Hydrocarbon Cracking in the Gas Industry" is of foremost current significance.

Of special importance at this first session will be a panel discussion on "The Latest in High B.t.u. Oil Gas" under the chairmanship of G. J. McKinnon, Michigan Consolidated Gas Co., Detroit. Four experienced operators will present a stimulating discussion of present-day high B.t.u. production methods as follows: single generator set—F. P. Lamb, Washington Gas Light Co.; twin generator set—R. H. Meserve, Northern States Power Co., St. Paul; Hall regenerative set—representative from Consolidated Gas Electric Light and Power Co. of Baltimore; and new developments—John W. Carroll, Philadelphia Electric Company.

Scores of pertinent topics are scheduled for discussion at the Monday afternoon luncheon conferences which will be divided as follows: Carbonization and Coke—E. A. Manlove, The Peoples Gas Light and Coke Co., chairman, and I. J. True, Providence Gas Co., alternate chairman; Chemistry in Industry—Louis Shnidman, Rochester Gas and Electric Corp., chairman, and

Dr. J. D. Parent, Institute of Gas Technology, alternate chairman; High B.t.u. Gas—W. H. Isaacs, The Peoples Gas Light and Coke Co., chairman, and Hall M. Henry, Negea Service Corp., alternate chairman. The Chemistry in Industry luncheon will include a discussion of nuclear energy developments by Dr. Kenneth H. Kingdon, Knolls Atomic Power Laboratory for General Electric at Schenectady.

Opening the Tuesday morning chemical session, Frank P. Mueller, The Peoples Gas Light and Coke Co., will discuss "The Effect of Oxygen in Gas Upon Gas Distribution Systems." Two U. S. Bureau of Mines speakers on this program point up the growing interrelationship of Government and industry fuel programs. The first speaker, L. C. Skinner, Louisiana, Mo., will consider the possibilities of public utility gas as a product of synthetic fuel production; the second speaker, W. M. Deaton, Amarillo, Texas, will present results of a joint A. G. A.-Bureau project covering "Chemistry of Natural Gas Hydrates." At the same session, Bruce S. Old, Arthur D. Little, Inc., Cambridge, will describe the "Use of Tracer Elements in the Gas Industry." W. B. Kirk, A. G. A. Testing Laboratories, will present "Possibilities for Designing Burners Having Flexible Performance Without Readjustment on Base and Peak Load Gases."

Tuesday program

The Tuesday morning gas production session will open with a report on "Natural Gas Standby Methods" by Lester J. Eck, Minneapolis Gas Company. Unusual maintenance when reforming natural gas will be the subject of a discussion by R. B. Paquette, The Peoples Gas Light and Coke Co., and methods of (Continued on page 48)

A. G. A.

Distribution, Motor Vehicle
and Corrosion Conference
in Cincinnati, Ohio

April 4-6

will be reported in the

May MONTHLY



Sidney E. Trouard, chairman, Corrosion Committee which is sponsoring new technical series

First steps in installing ca

Each year the gas industry loses millions of dollars through the effects of corrosion. The fact is that much of this huge annual loss can be stopped by cathodic protection and other proper preventive measures. But in order to take full advantage of cathodic protection a high degree of engineering skill is required.

With the objective of helping to supply this badly needed engineering knowledge, the American Gas Association Corrosion Committee is initiating in the MONTHLY, beginning this issue, a series of short articles on the fundamentals of the corrosion problem. Each article will be designed so as to be readily understandable to the gas engineer without his having to wade through a mass of chemical formulae and complicated mathematical equations.

Individual articles will treat such important topics as causes of corrosion, designs of cathodic protection systems, pipe coatings, galvanic anodes, rectifiers, instruments for corrosion mitigation work, and other subjects. Throughout the series, simplicity of presentation will be stressed so that the articles will be of widest general interest to technical men in the gas industry.

Each of the four major subcommittees of the newly formed A.G.A. Corrosion Committee will contribute to the new series. At the same time, these groups are furthering the progress of the Tech-

nical Section by an intensive attack on outstanding aspects of the corrosion problem.

One of the first steps in the Committee's program is a luncheon conference on pipe coatings to be held at the A.G.A. Distribution Motor Vehicle and Corrosion Conference in Cincinnati early this month. Technical representatives of leading pipe coating manufacturers will serve as a board of experts in an open panel discussion. A second luncheon meeting at that conference will cover general corrosion topics.

Further committee studies and investigations will be undertaken during the coming months as follows:

Subcommittee on Causes of Underground Corrosion of Metals—R. F. Hadley, Susquehanna Pipeline Company, Philadelphia, chairman: The 11 members of this group are attempting to determine the various fundamental causes of underground deterioration of metallic gas utility superstructures. This subcommittee will also study the corrosive constituents of soil, stray current electrolysis, galvanic action, anaerobic conditions and their effects on steel, cast iron and non-ferrous underground gas utility plants.

Subcommittee on Underground Corrosion Mitigation Practices—A. D. Simpson, Jr., United Gas Corp., Houston, chairman: This 28-man team has scheduled a broad study of evaluation and development of methods for protecting underground structures against attack by existent corrosive action. General attention will be devoted to pipe coatings, galvanic anodes, rectifiers, and other sources of power for furnishing cathodic protection to city distribution and long-range transmission systems.

Subcommittee on Above-Ground Corrosion Mitigation Practices—M. J. Pfeiffer, The Cincinnati Gas & Electric Co., Cincinnati, chairman: This six-man group is tackling a line of work which is rather new in Technical Section activities. The study program includes means of pro-

tecting against corrosion, gas plant equipment such as holders, condensers, scrubbers, pumps and others. Electrolytic action on engine bearings and cooling systems, and internal corrosion of steam and water lines also will be studied. Corrosion problems involved in residential and commercial gas meters and regulators will be analyzed as well as corrosion in gas conditioning, pumping and gathering stations.

Subcommittee on Instrumentation—M. C. Miller, Ebasco Services, Inc., New York, chairman: The five members of this group are investigating the determining and recommending of proper instruments to measure and detect corrosive influences, and the development of instrumentation methods, suggested by other corrosion subcommittees.

There is no better time than now for the gas industry to concentrate on reducing the staggering economic loss due to corrosion. Cathodic protection correctly installed and operated will go a long way toward solving this problem. It is hoped that this new series will bring the importance of cathodic protection to the attention of all technical men, so that in the near future every gas company, large or small, will have the technical background to meet and solve corrosion problems—*Sidney E. Trouard, chairman, A.G.A. Corrosion Committee.*

Part 1

Preliminary steps in installing cathodic protection on a new gas system—prepared by A. G. A. Subcommittee on Underground Corrosion Mitigation Practices.

Relatively few preliminary steps are necessary for the application of cathodic protection to a gas distribution system if it is to be applied at the time the mains and services are constructed.

The steps in the order of their importance are as follows:

ng cathodic protection

- (1) Soil survey
- (2) Selection of current source
- (3) Design of cathodic protection installation
- (4) Construction standards
- (5) Field installations
- (6) Setting up operation and maintenance procedures.

Probably the most logical *first* step would be a soil survey to determine the resistivity of the soil. These surveys may vary from a comparatively few tests with Shepard Canes, if the soil is uniform, to rather complicated resistivity tests by the use of sensitive instruments in the hands of trained corrosion engineers, particularly if the soil conditions vary to any great extent within the area in which the distribution system is to be constructed. One thing is certain—before a design can be started, it is necessary to have information as to soil resistivities in order to determine to some extent the need for cathodic protection.

Soil resistivities will give some necessary information as to current requirements and indicate possible methods of obtaining this current. These surveys may indicate soils which vary from below 200 ohm centimeters to an excess of 35,000 ohm centimeters.

A coated system may be adequately protected by galvanic anodes if the soil resistivity is low enough to obtain a satisfactory current output from this type of anode. If the line is to be laid bare, or if soil resistivity is very high, rectifiers and ground bed installations may be desirable. Engineering economic analysis will reveal which is most practical for each condition.

Rectifiers will mean monthly power bills in most cases, as well as replacement of depleted ground bed installations. Considerable care is also required in the selection of ground bed installations, and in some congested areas it is hard to find a suitable location for them. On the other hand, galvanic anode installa-

tions are usually of the distributed anode type and allow a greater choice in selection of desirable locations in most systems.

In general, it is more economical to have a reasonably good coating on the pipe and use galvanic anodes to accomplish a complete cathodic protection program in congested areas.

After making a preliminary analysis to determine type of protective systems to be used, the corrosion engineer can easily design the entire protective system from the blue prints of the distribution design.

The area should be divided into sections by means of insulating joints which will separate the system electrically so that tests can be made for contacts which may occur later. Current requirements for each area are then calculated for the soil conditions which have been found and the total area of the pipe to be protected. Once this information is known, anode installations are designed, or in the case of rectifiers, ground beds are designed and locations indicated on the design map.

There are many things which the corrosion engineer will want to know before he designs his job; however, frequently the engineering work required to determine all of these items is impractical when costs are considered. In general, it is more economical to make some assumptions and to increase the protective system to compensate for these contingencies.

Certain changes in construction standards will not only be desirable but necessary if the cost of the job, satisfactory operation, and ease of maintenance are to be accomplished at the best over-all level. Coating standards should be set up to maintain a reasonably good job with attention stressed on field joints and fittings such as valves, Dresser couplings, etc., which in normal construction are often slighted by the coating crews.

Next, it is most important to bond



A. D. Simpson, Jr., chairman, A. G. A. Subcommittee on Underground Corrosion Mitigation Practices

across at Dresser couplings which are not designated as insulating joints. Commercial material in package form is obtainable for this purpose. Installation of insulating Dresser couplings should be carefully performed to prevent damage to the rubber boot. This requires general instruction to the construction forces. Location and grade of mains and services must be in such a manner as to avoid electrical contact with foreign metallic structures.

Selection of a satisfactory insulating fitting for service lines is a very important item. The selection of a fitting for this purpose should consider mechanical strength, adequacy of insulating material, ease of installation, and durability of effective insulation. Also, consideration should be given to future additional installations so that the number of types of fittings which must be carried in warehouse stock may be kept at a minimum. Once the fitting is selected, the proper place for its installation must be found and meter loop drawings revised to incorporate its use.

At first consideration, field installations may seem a very big problem. In many cases this is not true. Usually a general meeting with the corrosion engineer, the contractor's superintendent and foreman, and company inspectors before construction starts, will allow the corrosion engineer to tell the story of what needs to (Continued on page 38)

Industry news

Gas revenues increase

TOTAL REVENUES from sales of gas by utilities for the fourth quarter of 1948 were \$403 million an increase of 13.0 percent over the same quarter of 1947, according to a report of the American Gas Association. Revenues from industrial sales represented the highest percentage gain, rising 18.3 percent. Residential gas revenues were up 10.9 percent and commercial gas revenues gained 12.6 percent over last year.

In the twelve-month period ending December 31, 1948, total revenues from utility sales of gas were \$1,544,000,000, an increase of 11.6 percent over revenues of \$1,384,000,000 in the previous twelve-month period.

The gas industry was serving utility gas to

22,300,000 customers at the end of the year, an increase of 3.6 percent over 1947. Approximately 300,000 customers were served with LP-gas by gas companies at the end of 1948. Residential customers totaled 20,700,000, an increase of 3.5 percent over the 20 million served in the previous year. Commercial and industrial customers gained 4.7 percent and 3.9 percent respectively.

Total revenues from natural gas sales during the fourth quarter of 1948 were \$259 million, a rise of 17.7 percent over the comparable quarter of 1947. For the 12 months ending December 31, 1948, revenues from natural gas sales were \$976 million, an increase of 15.1 percent over 1947, when natural gas revenues were \$848 million.

Sales of natural gas during the fourth quarter totaled 749 million M.c.f., an increase of 16.1 percent over the fourth quarter of 1947. For the year ending December 31, 1948, sales of natural gas amounted to 2,822,000,000 M.c.f., a gain of 12.2 percent over sales of 2,515,000,000 M.c.f. in 1947. At the end of 1948 about 11,800,000 customers were being served with natural gas, an increase of 10.2 percent over the previous year.

Revenues from manufactured gas sales in the fourth quarter of 1948 totaled about \$119 million, an increase of 10.6 percent over \$107 million in the similar period in 1947. For 12 months ending December 31, 1948, manufac-

tured gas revenues were \$464 million, a gain of 12.3 percent over a year earlier.

Manufactured gas sales in the fourth quarter of 1948 totaled 109 million M.c.f., approximately the same as a year earlier. For the full year, manufactured gas sales were 446 million M.c.f., up 2.8 percent over 434 million M.c.f. sold in 1947. Manufactured gas customers declined slightly in 1948, totaling 8,600,000 at the year-end, down 0.8 percent from 8,700,000 customers in the previous year.

Revenues from mixed gas sales in the fourth quarter of 1948 were about \$25 million, a decline of 13.8 percent under \$29 million in the comparable quarter of 1947. For the 12 months, mixed gas revenues totaled \$104 million, a drop of 15.1 percent from a year earlier.

Mixed gas sales in the fourth quarter of 1948 were 35 million M.c.f., a decline of 11.7 percent from a year ago when mixed gas sales totaled about 39 million M.c.f. For the 12 months ending December 31, 1948, mixed gas sales were 147 million M.c.f., a decrease of 14.6 percent from 172 million M.c.f. sold in the previous year. Mixed gas customers at the end of 1948 numbered 1,900,000 down 11.3 percent from the previous year.

Declines in mixed gas sales, revenues and customers were due to change-overs of several large utilities from distribution of mixed gas to natural gas during 1948.

A. G. A. Southwest personnel group meets

UNDER THE AUSPICES of the American Gas Association Southwest Personnel Conference, some 40 personnel executives of gas companies in the area held a successful meeting on February 28 in the Hotel Peabody, Memphis, Tenn. The chairman of the conference, V. H. Luneborg, personnel manager, Arkansas Natural Gas Corp., presided. A paper presented by Kurwin R. Boyes, secretary, A. G. A., covered human relations in industry and included a plea for increased attention to supervisory training.

M. V. Cousins, director of personnel, United Gas Pipe Line Co., presented an interesting report on his attendance at the Advance Management Program, a thirteen-week course conducted by Harvard Graduate School of Business Administration. Mr. Luneborg described the second annual survey of fringe benefit costs to be made by the A. G. A. Personnel Committee. A discussion followed on specific problems facing companies, such as basis for rental and allotment of company houses, contract negotiations and cost of liv-

ing bonuses.

A questionnaire on personnel policies to be sent to the companies represented at the conference was submitted by Harold F. Taylor, Oklahoma Natural Gas Co., and a number of changes were agreed upon.

At the recommendation of a committee consisting of Past Chairmen Carmouche, Cousins, Wiegel, Senyard, and Chairman Luneborg, the A. G. A. Southwest Personnel Conference by formal vote became affiliated with the Southern Gas Association.



Meeting of A. G. A. Southwest Personnel Conference in Memphis, Tenn., at which the group voted to affiliate with the Southern Gas Association

Public utility safety seminar completed

A SEMINAR in public utility safety, conducted by Ebasco Services Inc., in cooperation with New York University and believed to be the first of its kind, was concluded March 4 at a luncheon in the New York office of Ebasco Services. The seminar ran from February 21 to March 4 and was "tailor made" to teach client company safety and operating personnel modern practices and techniques in accident prevention administration, and to acquaint them with the latest developments in the field.

Safety work is becoming more complex and most safety men in utilities are picked "from the ranks." With these facts in mind, the seminar presented formal training in safety organization, procedures and techniques, as well as practice in speaking and instruction in effective human relationships. Sessions were designed primarily for safety directors and their assistants, but proved equally effective as an educational medium for operating, personnel and training people concerned with supervisory aspects of accident prevention.

Approximately one-half of the seminar was spent at New York University and the remaining time in field visits, instructional work and conferences at Ebasco offices. Subjects included the following: effective speaking, effective relations (practical psychology), conference leadership and training, utility safety programs, motor vehicle safety, visual aids, fire prevention and protection, field visits and an association panel.

Field trips included visits to the training school of the New York Telephone Company at Long Island City; to the Waterside Plant and head offices of Consolidated Edison Co. of New York, Inc., and to Walter Kidde Company at Belleville, N. J., for demonstration of first aid fire extinguishing equipment.

The association panel, a unique feature of the seminar, was held at headquarters of the



Members of the safety panel held at New York headquarters of American Gas Association: (Seated, left to right) G. R. King, chairman, A. G. A. Purging Committee; A. G. King, secretary, A. G. A. Manufacturing Gas Department and Technical Section; W. F. Brown, chairman, A. G. A. Accident Prevention Committee; W. T. Rogers, Ebasco Services, Inc.; S. Carter, American Transit Association; J. S. Cuthbert, National Safety Council. Attending the session were (standing) T. J. Rigby, The Montana Power Co.; F. M. Keith, Dallas Power & Light Co.; P. J. Bott, Arkansas Power & Light Co.; G. Dixon, Carolina Power & Light Co.; J. G. Sealy, Ebasco Services, Inc.; R. D. Price, Louisiana Power & Light Co.; B. C. Woodson, Iowa Electric Light & Power Co.; J. Chame, Chile; T. D. Hughston, Texas Power & Light Co.; H. L. Stewart, Birmingham Electric Co.; H. K. Dickinson, Montana Power Company

American Gas Association, Representatives of accident prevention groups of American Gas Association, Edison Electric Institute, American Transit Association, American Institute of Electrical Engineers, American Society of Safety Engineers, and National Safety Council, outlined the work of their respective associations in the safety field and answered questions of the seminar group. Members of the panel included W. F. Brown, safety director, Consolidated Edison Co., and chairman, A.G.A. Accident Prevention Committee; A. Gordon King, A.G.A.; G. R. King, Philadelphia Electric Co.; Stephen Carter, American Transit Association; W. R. Smith, safety director, Public Service Electric & Gas Co.,

Newark, N. J.; John S. Cuthbert, National Safety Council; and W. T. Rogers, Ebasco, as chairman.

Courses at the University were under the auspices of the department of general education and were conducted by Dr. Herbert J. Stack, professor of education and director of the center for safety education, and his assistant, Dr. Walter A. Cutter, assistant professor of industrial safety, assisted by Professor Milton D. Kramer and Dr. Dawson F. Dean. Ebasco sessions were conducted by G. G. Blair, fire protection engineer, and W. J. Rogers, safety consultant, Ebasco insurance department. The entire seminar was directed by the safety consultant.

Natural gas meeting reservations soar

MORE than 600 reservations have been received for the spring meeting of the Natural Gas Department, American Gas Association, at French Lick Springs Hotel, French Lick, Ind., on May 9 and 10. The program committee under its chairman, E. F. Schmidt, Lone Star Gas Co., Dallas, Texas, has secured numerous speakers who are well acquainted with the industry's problems. D. A. Hulcy, Lone Star Gas Co., chairman of the A. G. A. Natural Gas Department, will preside over the two general sessions.

A pertinent address entitled "Doing a Job Together," will be delivered by Robert W. Hendee, president, A. G. A. and Colorado Interstate Gas Company. Mr. Hendee is deeply interested in furthering unity, coordination and cooperation within the industry.

Arch M. Booth, general manager, U. S. Chamber of Commerce, will outline prospects for industry in a talk entitled "Business Outlook." "Natural Gas Problems in the Territory of Greatest Reserves" will be discussed by William J. Murray, Jr., chairman, Texas

Railroad Commission. Recent important regulatory events affecting the natural gas industry will be reviewed by Glenn W. Clark, vice-president and general counsel, Cities Service Gas Co., Oklahoma City, Oklahoma.

The second general session will be devoted to the complex and timely subject of meeting peak load problems. Discussions will include: "Catalytic Reforming and Thermal Cracking" by Edwin L. Hall, director, A.G.A. Testing Laboratories; "Storage of Gas to Meet Peak Loads" including "Economics of Underground Reservoirs" by Max W. Ball, former director, Oil and Gas Division, U. S. Department of the Interior; "Pipe Batteries" by F. A. Hough, vice-president, Southern Counties Gas Co., Los Angeles, Calif. and "Propane" by A. B. Lauderbaugh, chief gas engineer, The Manufacturers Light and Heat Co., Pittsburgh.

Speakers for this symposium are authorities on peak loads and at the same time represent various areas of the country where this problem has arisen.

Technical problems affecting the long distance transmission of natural gas, will be covered at open meetings of the A.G.A. Transmission Committee on both afternoons.

A. G. A.

Conference on Domestic
Research and Utilization
in Cleveland, Ohio
March 31-April 1
will be reported in the
May MONTHLY

Teen-agers learn kitchen planning



John Tishaus, Edna L. Derrick, and University of Cincinnati practice teachers, Mrs. Marlea J. Smith and Catherine A. Knarr (all standing at right) are on hand at St. Bernard High School to offer suggestions to students and help with the arrangement of cardboard kitchen models supplied by the utility

UNDER the supervision of John Tishaus, supervisor, educational institutions division, The Cincinnati Gas & Electric Co., more than 4,000 high school girls—students in home economics classes held in Cincinnati and vicinity—are learning kitchen planning and loving it. The project is the result of a cooperative effort between American Central

Division, Avco Manufacturing Corp., and the Cincinnati utility.

The entire idea is based on the belief that kitchen planning is just as important as meal planning. Cardboard kitchen unit models, made to scale and duplicating the originals in every respect, are the basis of the plan. Miniature sinks, wall cabinets, base cabinets,

gas refrigerators, gas ranges, make the girls feel that they are working with the real thing.

A week or two before a class is to be held, each girl receives a piece of simplified graph paper and is asked to make a floor plan of her parents' present kitchen. The object is to show how, with careful planning and the right equipment, any kitchen, however "difficult," can be transformed into a bright, cheerful and efficient place to work.

At the beginning of each session, Mr. Tishaus outlines the main principles of kitchen planning and asks the girls to set up the cardboard models they received. This is a simple task since all miniature models were designed for easy assembly and disassembly without the use of adhesives.

Using the graph paper showing the floor plans of their kitchens at home, the girls arrange the units in the way they think most suitable to their own kitchens. Mr. Tishaus then offers individual attention and criticism to each plan.

Each student is encouraged to take her model kitchen home so that her parents can visualize how their own kitchen could be modernized with new gas appliances and streamlined cabinets into a step-saving, work-saving room.

To date more than 100 public and private schools have asked for Mr. Tishaus to bring his models and teach their pupils kitchen planning.

Rate Service adds fuel adjustment data

THE American Gas Association Rate Service, which for the past 25 years has published gas rate schedules in effect in cities throughout the United States, is increasing its usefulness by making available to subscribers the currently effective levels of fuel adjustment clauses.

Because of rapidly rising fuel costs during recent years, many gas companies have recently added such fuel adjustment clauses as part of

their rate schedules. Up to this time, the Rate Service has indicated the nature of such clauses for individual gas companies, but has not attempted to indicate the actual levels of these adjustments, as they frequently are changed monthly or quarterly.

With this additional service, subscribers will be able to calculate bills, even though fuel adjustment clauses may be in effect, with-

out having to contact the individual utility company.

This information currently is being gathered at A. G. A. headquarters and will be available to any subscriber to the Rate Service by communicating with Julia Blash, the editor. It is planned to keep the fuel adjustment clause information as up-to-date as possible and to mail it periodically to Rate Service subscribers beginning in the near future.

A. G. A. holds midwest personnel conference

THE American Gas Association Midwest Personnel Conference met for an important session at the Fontenelle Hotel in Omaha, Neb., March 2, under the chairmanship of H. H. Duff, personnel director, Panhandle Eastern Pipe Line Co., Kansas City, Mo., and the vice-chairman of the conference, Roy L. Thomas, assistant secretary, Colorado Interstate Gas Co., Colorado Springs.

The meeting opened with an informative review of philosophy behind the thinking on

federal labor legislation, headed by D. W. Swarr, labor counsellor, Swarr, May, Royce, Smith & Story, attorneys, Omaha. R. L. Matheson, safety engineer, Panhandle Eastern Pipe Line Co., described his company's comprehensive accident prevention program as a beginning to other proposed activity of the conference in this field.

Safety delegates held a separate meeting in the afternoon. Kurwin R. Boyes, secretary,

A. G. A., presented impressions of personnel developments in industry in general with particular emphasis on those in the gas industry.

As customary, the remainder of the session was devoted to reporting and discussion of company developments. Arrangements for the meeting were made by J. T. Innis, general superintendent, Northern Natural Gas Co., Omaha, Neb., and secretary, A. G. A. Midwest Personnel Conference.

Syracuse students learn gas facts

ALL STUDENTS of the household equipment technology department, University of Syracuse, learned about the advantage of gas for cooking from Joe Rohde, Hardwick representative, last month.

In addition to seeing the gas industry's film "Winning Seals of Approval," the students learned from Mr. Rohde of the controllability, speed, flexibility and economy of gas as a cooking fuel. Students were presented with a kit

containing specifications for automatic ranges built to "CP" standards and other material.

Head of the household equipment technology department is Mrs. Prudence Connor, professor, household equipment technology.

A.G.A. convention plans take shape

PLANS for the thirty-first annual convention of the American Gas Association in Chicago, October 17-20, 1949, are taking shape under the direction of the General Convention Committee headed by George F. Mitchell, president, The Peoples Gas Light & Coke Co., Chicago.

The tentative agenda calls for the Natural Gas Department to meet in the morning, and the Manufactured Gas Department in the

afternoon, on October 17. Three general sessions will be held on the mornings of October 18, 19 and 20. Afternoon meetings are scheduled for the Residential Gas Section, Technical Section, and Accounting Section on October 18; the Industrial and Commercial Gas Section, Technical Section, Accounting Section, and a Home Service Round-Table on October 19; and meetings of the Accounting Section, Industrial and Commercial Gas Section, and

Technical Section on October 20. The Home Service Breakfast will be held on October 19.

Headquarters of the Technical Section will be located in the Morrison Hotel, the Accounting Section in the Palmer House, the Residential Gas Section and the Industrial and Commercial Gas Section in the Sherman Hotel.

Further details of the program and information concerning advance registration will be announced in future issues of the MONTHLY.

Heating men visit Los Angeles Laboratories

THE Pacific Coast Branch of the American Gas Association Testing Laboratories recently was host to more than 100 members and guests of the Institute of Gas Heating Industries, Santa Monica, California. The institute is an organization of manufacturers, installers, dealers and jobbers, which promotes high standards of installation for heating equipment in the Los Angeles area, as well as good relations with consumers. Ernest W.

Kimmell is managing director.

Guests who took advantage of the opportunity to become better acquainted with testing and inspection of gas appliances for approval were shown through the Laboratories by W. H. Vogan, supervisor; Frank Fiedler Jr., assistant supervisor; M. A. Dudden, chief test engineer; Pieter Root, Jr., assistant chief test engineer, and James A. Stone, chief inspection engineer.

Testing and inspection facilities of the Laboratories in Los Angeles were expanded during the past year by the acquisition of an adjoining building, approximately doubling the amount of floor space formerly available. The expansion is expected to take care of testing needs for the next ten years. About 9,000 square feet of additional floor space are provided, contained in a structure 100 by 85 feet with balcony.

New line of gas boilers

A NEW LINE of gas boilers for small residential heating installations, known as the "22" Series National Gas Boiler, is being marketed by The National Radiator Co., Johnstown, Pennsylvania. Designed exclusively for gas firing, the series is available in six sizes having net ratings between 110 and 390 square feet of steam radiation or 175 and 625 square feet of hot water radiation.

The series is approved by the American Gas Association for operation with natural, manufactured, mixed and liquefied petroleum gases.

The restaurant show affords an opportunity for commercial gas men to meet with manufacturers and restaurant operators and to see at first hand the new appliances and what is being done to promote more efficient kitchen operations in the volume cooking field.

A.G.A. plans restaurant show exhibit

THE giant auditorium in Atlantic City will be the scene of the 1949 National Restaurant Exposition, May 24-27, where the American Gas Association will again sponsor a Combined Commercial Cooking Exhibit—the largest single display in this important trade show.

Facing the boardwalk entrance on the main floor of the exhibition hall with three main aisles running through the gas area, the co-operating exhibitors will have a preferred location for their latest models of heavy duty gas cooking equipment.

Philadelphia anniversary

THE FORTIETH anniversary of Philadelphia Electric Company's employees association, one of the oldest and largest of its kind, was observed by a show and dance on March 8. Membership in the organization, which sponsors educational, social, and recreational activities for the company's employees, has totaled more than 20,000 during the 40 years of its existence. Nearly 80 percent of the 8,000 employees are presently members of the association, which convenes monthly.

Former presidents of the group include Horace P. Liversidge, now chairman of the utility's board of directors, and N. E. Funk, executive vice-president.



J. A. Stone (left), A. G. A. Testing Laboratories, explaining conduct of floor furnace test



Committee on Displays at National Expositions assigning space for A. G. A. Combined Commercial Cooking Exhibit: Al Hess (left), Frank Drohan, C. A. Young, New York; M. A. Combs, A. G. A.; W. D. Relyea, Newark, N. J.; Hugh Wathen, chairman; Frank Doyle, New York; L. H. Barry, Philadelphia; J. J. Bourke, A. G. A.; C. C. Hanthorn, Philadelphia; Chester A. Shear, New York

Great Lakes personnel officers named



E. L. Ramsey

Milwaukee Gas Light Co., Milwaukee, Wis.,

ELMER L. RAMSEY, assistant vice-president, The Laclede Gas Light Co., St. Louis, Mo., was elected chairman of the American Gas Association Great Lakes Personnel Conference at the group's spring meeting in Chicago on March 11. Tom E. Hayes, director of personnel and public relations,

was elected vice-chairman, and E. W. Christell, training supervisor, The Peoples Gas Light & Coke Co., Chicago, was elected secretary.

L. A. Brandt, director of employee relations, The Peoples Gas Light & Coke Co., presided at the conference. A featured speaker at the meeting was Dr. Raleigh Stone who delivered a stimulating talk on the expansion of employee benefit plans. Dr. Stone expressed the belief that any expansion of such plans should be made on a contributing basis.

The nominations were made by a committee consisting of Fred R. Rauch, The Cincinnati Gas & Electric Co.; Clifford B. Boulet,

Wisconsin Public Service Co., Milwaukee, Wis., and David R. Edwards, Columbia Engineering Corp., New York.

As customary in these regional conferences, considerable time was spent in reporting and discussing company personnel developments. The group voted unanimously to join with the other two regional personnel conferences and the Personnel Committee of the Association in sponsoring the fourth annual National Personnel Conference of the gas industry next November at a place to be announced. The next meeting of the A.G.A. Great Lakes Conference will be held in Chicago next June on a date to be announced by the secretary.

Cathodic protection

(Continued from page 33)

be done so effectively that the normal job inspectors can follow through to a satisfactory job completion.

After completion, the corrosion engineer will make his check-out survey to make certain all installations are functioning properly and develop actual current output of the various installations. Also, at this time he will gather information for permanent record purposes and set up any test points from which periodic readings by the operating personnel will be required.

The success of any cathodic protection system depends a great deal on its operation and maintenance by the operating forces. Meter readers, chart changers, line walkers, or others must realize the importance of the periodic reading which they are asked to make. They should be given a working knowledge of the program and the system which they operate.

Some means of control and record-keeping should be set up so that it will not be necessary for the corrosion engineers to go to the actual installation to find out how the systems are functioning. Permanent monthly records of the poten-

tials between protected and unprotected pipe, such as gas to water lines, should be kept. Inexpensive indicating meters set at district regulator installations or industrial gas meter settings will do the job nicely as the meter readers are required to visit these places at least weekly for other purposes. These readings with a completion survey by the corrosion engineer will give a most satisfactory job history file. It must be kept up, however, indicating location of any contacts or faults as they occur in the future.

As to costs of cathodic protection on coated lines, it has been found that a complete system can be engineered, installed, and operation set up under conditions found in the Gulf Coast Area for as little as two percent of the gross construction cost.

Bright future seen for gas industry

DISTINGUISHED members of the financial community have been outspoken in their belief that the gas industry is going places. Addressing the annual business conference of The New England Gas Association in Boston on March 24-25, Robert W. Hendee, president, American Gas Association, quoted the following statements directed to the attention of the investing public:

● H. C. Wainwright & Co.: "The future holds great promise for the gas industry. There is nothing in sight which could interrupt the growth of the industry and impair its earning power for a number of years."

● Starkweather & Co.: "The growth of the dynamic natural gas industry is limited only by its ability to raise capital and procure steel pipelines."

● Fitch Survey: "Human ingenuity combined with enormous natural resources has made the natural gas industry one of the wonders of our industrial age. It is clear that natural gas is destined to become one of the most important factors in the industrial development of the nation."

● Empire Trust Co., New York: "The natural gas industry has emerged as an industry of major consequence to a surprisingly large part of the United States. . . . The growth of this great industry, which is closely allied to the oil industry, has been as silent and efficient as natural gas itself."

● The New York Herald Tribune: "Considered from almost any angle, the natural gas industry is achieving an increasingly important position in the nation's economy."

First coal-to-oil plants

TWO NEW coal-to-oil demonstration plants—possible forerunners of a new basic industry in the United States—will be dedicated by the Bureau of Mines at Louisiana, Mo. on May 8, according to Secretary of the Interior J. A. Krug.

First of their kind in this country, the plants will employ different processes to convert coal and lignite into high-quality synthetic liquid fuels. Their combined cost is estimated at \$15 million.

Steel allocations law

PUBLIC LAW 395 covering allocations of steel under voluntary programs has been extended to September 30, 1949 under a bill signed by President Truman. The natural and manufactured gas industries have been attempting to obtain voluntary allocations under this law in order to help relieve the gas industry's critical shortage of steel.

New York State Electric & Gas men promoted

RALPH D. JENNISON, president, New York State Electric & Gas Corp., Ithaca, N. Y., has been elected chairman of the board. He continues as chief executive officer of the company.

Joseph M. Bell, Jr., manager of public utility securities for Equitable Life Assurance Society of the United States, with headquarters in New York City, was elected president to succeed Mr. Jennison. Mr. Bell, who is widely known and experienced in financial and utility circles, also was elected a member of the board of directors and a member of the executive committee.

Arnold W. Milliken, vice-president and a member of the board of directors, was named general manager of the company.

At a stockholders' meeting immediately preceding the board meeting, Edgar B. Parsons, secretary-treasurer and a director of Crowley's Milk Co., Inc., Binghamton, was elected a member of the board of directors.

Mr. Bell has been identified with Equitable Life Assurance Society of the United States since 1935 and has been in charge of the management of that society's investments in public utility securities. In 1924 he was graduated from the University of South Caro-



R. D. Jennison



J. M. Bell, Jr.



A. W. Milliken



D. A. Lewis

lina, where he majored in civil engineering.

Immediately following his graduation, he became associated with W. S. Barstow Co., public utility engineers and managers and a predecessor of Gilbert Associates, Inc., consulting engineers and consultants to the Ithaca utility.

From 1928 to 1935, he was associated with investment bankers and financial institutions in New York City, specializing in utility engineering and financing.

Mr. Jennison, who became president of New York State Electric & Gas Corporation in 1941, has devoted his life's work to the public utility field, a career that spans 40 years.

A graduate of the engineering department, University of Michigan, he entered the public utility business in 1909 and has been engaged in it constantly since then. As vice-president and general manager of Barstow Management Association, he supervised the engineering, construction and operation of numerous utilities, including New York State Electric & Gas Corporation.

Subsequently, he joined Utility Management Corp., New York, as vice-president. Upon becoming president in 1937, he served as a director or officer of many of the operating companies in the system, among them

New York State Electric & Gas Corporation, of which he was a director. Mr. Jennison has been active in utility association work.

Mr. Milliken is a graduate of Massachusetts Institute of Technology where he received a Bachelor of Science degree in electrical engineering.

He started his utility career that same year as a results engineer in the power plant of the New Bedford (Mass.) Gas & Edison Light Company. Later he served as assistant general manager of that company until February 1939, when he was made vice-president and Eastern division manager, New York State Electric & Gas Corporation.

In May 1945, he was appointed superintendent of operations on a statewide basis. He became a member of the board in May 1947.

David A. Lewis has been appointed general operating superintendent of the company.

Following graduation from Pennsylvania State College, he was employed by Public Service Corp. of Northern Illinois. He joined New York State Electric & Gas Corporation in February 1925, as distribution engineer.

Mr. Lewis was appointed manager of the Eastern division in September 1946, and became assistant to Mr. Milliken in May 1947.

Personal and otherwise

Mary Dillon announces her retirement

MARY E. DILLON, president, Brooklyn Borough Gas Company for 23 years, retired from that position on March 15 following 45 years with the company. She was succeeded as president by Walter M. Jeffords, Jr., a director and stockholder. Miss Dillon is continuing with the company as a consultant. Karl B. Weber, associated with Consolidated Edison Co. of New York, Inc. for more than 20 years, was elected a vice-president of the Brooklyn utility. These changes were made at Miss Dillon's request.

Miss Dillon's career contains a long list of impressive "firsts." Long known as the outstanding woman executive of the gas industry, she was the first woman to head a large public utility corporation. In 1944 she became the first woman to hold the post of president of the New York City Board of Education. On May 21 of that year, *The New York Times* carried a two-page feature article entitled "An Alger Career—The Story of Mary Dillon."

In 1935, Mrs. Franklin D. Roosevelt named 11 American women who had inspired her and Miss Dillon's name was near the top

of the list. The late Ida Tarbell chose her as one of America's great women. In 1942, the Brooklyn Chamber of Commerce selected Miss Dillon as "citizen of the year."

Her entire career has been one of unusual service to business, civic and charitable organizations.



Mary Dillon

Gas men Chamber of Commerce candidates

THREE prominent gas industry representatives are candidates for director of the U. S. Chamber of Commerce. All three men are active in the American Gas Association and have made valuable contributions to the gas industry.

C. I. Weaver, president, The Ohio Fuel Gas Co., Columbus, Ohio, is a candidate for

director of the National Resources Department. George E. Whitwell, vice-president, Philadelphia Electric Co., Philadelphia, Pa., is a candidate for director representing the second election district, and Dean H. Mitchell, president, Northern Indiana Public Service Co., Hammond, Ind., is running unopposed

for director representing the fifth election district.

If elected, the candidates will take their places beside D. A. Hulcy, president, Lone Star Gas Co., Dallas, Texas. Mr. Hulcy is an A.G.A. vice-president and chairman of the Natural Resources Department, U. S. Chamber of Commerce.

Brooklyn Union promotes Bayer

ALFRED R. BAYER, formerly engineer's assistant in the development and planning department, The Brooklyn Union Gas Co., has been advanced to assistant engineer.

Mr. Bayer first joined the gas company in 1931. After completing cadet training he became a laboratory chemist, later advanced to research chemist and finally assistant to chief

chemist. He was transferred to the development and planning department last September.

Mr. Bayer was graduated from Rensselaer Polytechnic Institute in 1931 and then received his M.S. from Lafayette College. While at Lafayette he held the Hart Fellowship in Chemical Engineering. He took grad-

uate studies in metallurgy and gas engineering at Columbia University and Brooklyn Polytechnic Institute. Mr. Bayer conducted the gas engineering preparatory course sponsored by the utility from 1934 to 1938. He has been active in American Gas Association work and has reported on several of his research projects at conventions.

Chamberlain to direct Milwaukee utility

GLENN R. CHAMBERLAIN has been named executive vice-president and a director, Milwaukee Gas Light Co., during the illness of J. A. B. Lovett, company president. Mr. Lovett first became ill on January 25, 1949.

Mr. Chamberlain has spent more than 50 years in the gas utility field, most of which time he has been connected with companies closely allied to Milwaukee Gas Light Company. He is a former president of the Michigan Gas Association and an organizer and

vice-president of the National Commercial Gas Association.

At the present time he is first vice-president, Michigan Consolidated Gas Co.; vice-president, American Light & Traction Co.; president, Austin Field Pipe Line Co., and a director, Michigan-Wisconsin Pipe Line Co., a post he has held since that company was first organized.

Mr. Chamberlain will continue to occupy these posts while serving as acting head of

the Milwaukee utility in Mr. Lovett's absence. Mr. Lovett has been re-elected president of both the gas company and Solvay Coke Co., and Mr. Chamberlain has been named executive vice-president and a director of the coke firm.



G. R. Chamberlain

Wrench named to new post at Omaha

M. K. WRENCH, former superintendent of production for the Metropolitan Utilities District of Omaha, Omaha, Neb., has been appointed manager, department of gas operation. He is a member of the American Gas Association.

Mr. Wrench received his B.S. degree from Michigan State College and joined the gas industry as a meter reader and clerk for Greenville Michigan Gas Company. Subsequently he worked for Central Public Service Corp., Chicago, and for subsidiaries in Michigan Fed-

erated Utilities, Southern Cities Public Service and Central Natural Gas Corporation.

He served with Minneapolis Gas Light Company from 1931 to 1937, and after that with Savannah Gas Co., Ga., for two years as general superintendent. In the latter part of 1939 he joined the Metropolitan Utilities District of Omaha as superintendent of production.

Mr. Wrench has spent his business life in both construction and operation in manufactured and natural gas fields. His brother,

Harry K. Wrench, is president and general manager, Minneapolis Gas Co., and a director of the American Gas Association. His nephew, Harry K. Wrench, Jr., is president, Wisconsin Fuel and Light Co., Manitowoc, Wisconsin.



M. K. Wrench

Ogborn advances at Southern California



R. F. Ogborn

R. F. OGBORN, formerly assistant Los Angeles district manager, has been appointed manager of the customers department, Southern California Gas Co., Los Angeles.

Mr. Ogborn takes over the position left vacant by the death of H. E. Davidson.

Mr. Ogborn joined the company on March 1, 1926 at the Burbank office, and was transferred to the Glendale office later that year. In 1935 he was transferred to Los Angeles.

He was appointed district agent in Bakersfield in July 1936, and held that position until February 1939 when he was transferred to Pasadena as assistant district manager. In 1942, Mr. Ogborn was appointed assistant manager of the Los Angeles District, customers department, the position he held at the time of his new advancement. He is a member of the American Gas Association.

Rockwell appoints general manager



R. G. Caouette

R. G. CAOUCETTE has been appointed general manager of the Pittsburgh Equitable Meter Division, Rockwell Manufacturing Company. The announcement was made by L. A. Dixon, vice-president in charge of meter and valve divisions.

Mr. Caouette has

had a wide and varied experience with Rockwell, having been production superintendent of the Delta division before coming to Pittsburgh. Later he became manager of industrial engineering for all of Rockwell Manufacturing Company's plants. He recently was general manager of the Red Star Products Division of Norwalk, Ohio.

Before joining Rockwell, Mr. Caouette was industrial engineer for Minneapolis-Moline Implement Company at Moline, Illinois. He attended Waynesburg College and George Washington University.

Reynolds joins Gas Machinery

DAVID S. REYNOLDS has been appointed New England representative for The Gas Machinery Co., Cleveland, Ohio. His services will be made available to gas plant operators throughout the New England area and extending as far south as Metropolitan New York.

A graduate of Massachusetts Institute of Technology, Mr. Reynolds started in the gas industry in 1902 as a cadet engineer. In 1912 he was named designing engineer, The Boston Co., and in 1918 was appointed construction engineer. In 1928 he was named chief engineer, Boston Consolidated Gas Co., while retaining the work as engineer of construction.

In 1947, Mr. Reynolds retired as vice-president and chief engineer, Boston Consolidated Gas Company. Since retirement, he has acted as consultant to several gas companies in New England.

Mr. Reynolds is a member of the American Gas Association, past-president, The New England Gas Association, and president, The Guild of Gas Managers of New England.



D. S. Reynolds

Worley retires from Oklahoma company

RETIREMENT of C. S. Worley, chief engineer and purchasing agent, Consolidated Gas Utilities Corp., Oklahoma City, Okla., for the past 20 years, was announced February 7 at a dinner given in his honor in Oklahoma City by executives of the company. Mr. Worley, active in engineering and purchasing circles throughout the Southwest for many years, will continue to be available as a consulting engineer. He has been president of the Oklahoma Society of Professional Engineers and twice has served as vice-president, National Association of Purchasing Agents.

Company officials also announced that recent expansion has necessitated the division of Mr. Worley's former duties. E. Maurice Myers, who redesigned and revamped much

of the company's pipeline system during the last four years, has taken over operation of the compressor station system formerly handled by Mr. Worley. Mr. Myers served for approximately eight years as engineer for the Oklahoma Corporation Commission, followed by three years' service with the War Utilities Commission in Washington. He joined the Consolidated utility in 1945.

Harris Glenn, engineer and chief of the



C. S. Worley



E. M. Myers



Harris Glenn

drafting department, has assumed the additional duties of purchasing. Mr. Glenn has been with Consolidated approximately eight years.

Hulcy receives Dallas civic award

D. A. HULCY, president, Lone Star Gas Co., and second vice-president, American Gas Association, has been named winner of the Linz Award for the most significant contributions to Dallas, Texas during 1948. Mr. Hulcy, holder of numerous community and national posts, was selected by a committee of 29 civic leaders from among 75 nominations submitted by Dallas County residents.

The award consists of a sterling silver plaque bearing the inscription "Lest your praises be unsung: For the high ideals and noble aims from which your splendid work has resulted in greatest benefit to the community of Dallas, this presentation is made by the firm of Linz Brothers."

Mr. Hulcy is third-term president of the

Dallas Chamber of Commerce. He has been active as a director of the Dallas Citizens Council, a member of the executive committee of Southern Methodist University, a trustee of Southwestern Legal Foundation and Texas State Research Foundation.

He was cited also for having contributed materially to the growth and expansion of business activities in Dallas as president of Lone Star Gas Company.



D. A. Hulcy

Business outlook

(Continued from page 19)

of controls would be necessary. But controls deal with effects rather than fundamental causes, and in peacetime cause disruptions, shortages, the flourishing of black markets, and can bring about curtailment and unemployment.

Since the early part of the 1930's, the creation of purchasing power by the Government has been advocated as a panacea for economic ills. This theory has become deeply implanted in the public mind and has formed the basis of our national policy.

As expressed by Professor Jewkes: "The modern planning movement sets out, with good will and noble intentions, to control things and invariably ends up by controlling men." There is no record that planning by government on a large scale has ever raised the living standards or provided freedom to any people, but quite the reverse. As a matter of fact, historical evidence clearly shows that it was not until the emergence of capitalism that the so-called common man got his first real chance.

The American program should be geared to a dynamic and not a static system patterned after the feudalism of the Middle Ages. There are grave dangers in sugar-coated slogans that have the appearance of short-cuts to Utopia but which in reality lead down the road to serfdom. A subsidized economy built on Federal crutches cannot endure. Our economy should instead rest upon private initiative and free enterprise, the pillars upon which the American system has been built and without which it cannot survive.

Trembly made Philadelphia sales manager

APPOINTMENT of Frank H. Trembly, Jr. as sales manager, The Philadelphia Gas Works Co., Philadelphia, Pa., has been announced by Hudson W. Reed, company president.

Mr. Trembly, who served as the gas company's assistant sales manager for the last 15 years, succeeds H. S. Christman who died suddenly on February 17.

A graduate in chemical engineering of Carnegie Institute of Technology, Mr. Trembly has been associated with the gas industry for 25 years. He has served over a period of years on residential, industrial and commercial gas sales committees of the American Gas Association, and in 1938-39 was chairman of the

A. G. A. Industrial & Commercial Gas Section. He is a past-president of the Pennsylvania Gas Association.

He was employed by Surface Combustion Corporation in engineering and sales work from 1924 to 1931, when he came to The Philadelphia Gas Works Company as supervisor of the industrial division. In 1934, Mr. Trembly was appointed assistant sales manager of the gas company.



F. H. Trembly, Jr.

Ohio Fuel Gas Names director

W. T. SHINHOLSER, chief engineer, The Ohio Fuel Gas Co., Columbia, Ohio, has been elected a member of the company's board of directors.

A graduate of Alabama Polytechnic Institute, Mr. Shinholser was associated with Cities Service Company for 12 years before joining The Ohio Fuel Gas Company in 1929. He was named chief engineer in 1944.

Mr. Shinholser's principal engineering projects involve additions to and relocations of the company's compressor stations and transmis-

sion lines, and development of the utility's extensive system of underground gas storage.

He is active in the program of the American Gas Association Testing Laboratories in Cleveland, and in research work of the Institute of Gas Technology, Chicago.



W. T. Shinholser

Many uses for A. G. A. Rate Service

● One of the most useful and valuable activities of the American Gas Association is the preparation of a comprehensive rate service. This service is invaluable in that it is the only one of its kind showing in detailed form gas rate schedules in actual use.

Issued in loose-leaf form, the rate service contains more than 500 pages (8½" x 11") of complete and accurate information relative to gas rate schedules. It is leatherette bound and is kept up-to-date by monthly supplements.

Gas rates for hundreds of companies over the entire United States and Canada are reported in such detailed and excellent form that they should be of great assistance to rate-making departments in the shaping of new rates, and to industrial and commercial departments in evaluating sales comparisons with other companies.

In addition to all types of gas rate schedules, the service includes lists of communities supplied with gas, the companies supplying those communities, and the heating value and type of gas served. Companies subscribing to this service have found it to be indispensable. Considering the value, the cost is nominal.

Price of subscriptions to members (including supplements) is \$12.00 a year, and to non-members, \$15.00 a year.

G.A.M.A. lists natural gas construction

A NEW compilation of "Natural Gas Construction Data" was released March 23 by the Gas Appliance Manufacturers Association, H. Leigh Whitelaw, managing director, has announced. The publication provides data on all major natural gas pipeline projects submitted to the Federal Power Commission from

July 1, 1945 to January 1, 1949. It covers all major natural gas construction including natural gas lines authorized, those completed and those projects which are still pending before the Commission.

Total cost of these authorizations exceed \$894 million. Included in these totals are

projects costing approximately \$300 million which were actually completed and operating as of January 1, 1949. This includes 6,230 miles of pipeline which required an estimated 1,265,700 tons of steel pipe. Actually, projects authorized, involving some \$593 million and including 8,599 miles of line, or 2,113,100 tons of steel pipe had not been completed on January 1, 1949.

Pending F.P.C. authorization on January 1, 1949 were projects involving expenditures of over \$1,167,000,000. When approved, these projects will include a total of 14,559 miles of new line requiring 3,672,100 tons of steel pipe.

Thus, the major natural gas construction authorized in the 3½ year period from July 1, 1945 to January 1, 1949 and the projects pending authorization on January 1, 1949 call for expenditures in excess of \$2,061,000,000. The 29,442 miles of pipe involved since the end of the war totals some 7,058,000 net tons of steel. This mileage exceeds by almost 5,000 miles the equatorial circumference of the earth.

A recent survey by the F.P.C. indicates that natural gas construction projects have been delayed up to 40 months because of inability to obtain line pipe.

The above figures relate to major natural gas pipe line construction. There are many projects, both approved and pending, which individually account for small mileages and expenditures, however, in the aggregate they represent a fairly sizeable figure.

Canadian gas men to meet in June

WITH a prospective attendance of 400 delegates from all parts of Canada and the United States, the forty-second annual convention of the Canadian Gas Association, June 16-20, at Bigwin Inn, Lake of Bays, Muskoka, Ontario, is expected to be a memo-

orable event. A strong program headed by Alexander MacKenzie of Toronto, president of the association, is being arranged to cover many industry problems.

Bigwin Inn, setting for the convention, is one of the most outstanding and attractive

summer resorts in Canada. Rounding out the natural advantages, will be a varied entertainment program for the visiting gas men. For reservations write George W. Allen, Canadian Gas Association, 7 Astley Ave., Toronto 5, Ontario prior to June 1.



Charles E. Reinicker

an executive of the Chamber of Commerce, died March 1 at his apartment in Philadelphia. He was 63 years old.

Mr. Reinicker was active in educational work of the American Gas Association, particularly in connection with gas standards. He served on various committees of the A. G. A. Technical Section and assisted in the preparation of the Rutgers University course on gas engineering.

He served with The United Gas Improvement Co., Philadelphia, Pa. for 22 years where he held the post of assistant to the executive vice-president. Mr. Reinicker joined the Chamber of Commerce staff in December 1945 to handle production problems and industrial engineering. For four years he was on the War Production Board as deputy director of the Philadelphia region. He is survived by his wife, Louise D. Reinicker.

Price W. Janeway, Jr.

member of an old Philadelphia family, died suddenly on February 28 at the age of 58.

Mr. Janeway was patent engineer for United Engineers & Constructors, Inc., Philadelphia, Pa., for the past three years, and held a similar position with The United Gas Improvement Co., Philadelphia, from 1925 to 1945.

He was a graduate of Lehigh University and a member of the American Gas Association. Mr. Janeway was well known for his acute perception and clear thinking in patent problems.

Elmer G. Diefenbach

pioneer in the field of natural gas distribution in the United States, died February 27 at New York Hospital. His contributions to the extension of natural gas pipeline systems through the South and Midwest were recognized as an important factor in the country's industrial achievements during World War II.

Mr. Diefenbach was executive vice-president, American Securities Corp., New York, and helped to develop more than eight gas companies most of which are now part of the United Gas Corporation system.

New England association elects Eacker

CURRENT PROBLEMS facing the gas industry in New England and the aggressive steps being taken to solve them were given a thorough airing at the twenty-second annual business conference of The New England Gas Association in Boston, Mass., March 24 and 25, 1949.

Members of the group, one of the oldest trade associations in America, elected as their new president, Earl H. Eacker, president, Boston Consolidated Gas Company. John A. Hiller, Portland Gas Light Co., was elected first vice-president; Gordon G. Howie, Cambridge

Gas Light Co., was made second vice-president; Otto Price, Boston Consolidated Gas Co., was named treasurer, and Clark Belden, was re-elected executive secretary.

Mr. Belden told the delegates that N.E.G.A. had a net gain of 57 new company members during the past two fiscal years, the largest number for any similar period in the group's history. Edward G. Twohey, Worcester County Electric Co., retiring president of N.E.G.A., discussed the "health" of the New England gas industry, paying attention to the possibility of natural gas reaching that area. Major problems which the industry is now attempting to solve include, he said, the steadily increasing costs of doing business, the need for additional production and distribution capacity, and the question of financing substantial plant additions.

A clear picture of the growing integration of all elements of the American gas industry was supplied by Robert W. Hendee, president, American Gas Association. An encouraging factor in the "impending battle for markets," he declared, "is the increasing solidarity and understanding relationship which characterizes the operations of the American Gas Association and the Gas Appliance Manufacturers Association."

Other important industry speakers included E. P. Noppel, Ebasco Services, Inc., who showed trends of energy consumption and supply; E. S. Pettyjohn, director, Institute of Gas Technology, Chicago, who described economic implications of new production processes; C. George Segeler, A. G. A., who discussed the competitive situation, and Frank J. Nugent, president, Gas Appliance Manufacturers Association, who outlined G.A.M.A.'s contributions to the industry and appealed for more aggressive sales policies.

Excerpts from the talk of William B. Hew-

son, The Brooklyn Union Gas Co., on advertising, and from the address of Nicholas E. Peterson, The First National Bank of Boston, are printed in this issue of the MONTHLY.

Another feature of the program was an interesting address on labor developments by Dr. Leo Wolman, Columbia University, followed by active discussion from the floor.

Prominent speakers

Three prominent gas industry figures—J. J. Quinn and Walter C. Slade, Boston, and C. H. Ackerman, Newton, Mass., received special commendation for their contributions to The New England Gas Association.

Five divisional chairmen also were selected by N.E.G.A.: Accounting—W. H. Kimball, Central Maine Power Co.; Industrial—Mark J. Pasqualetti, Providence Gas Co.; Manufacturers—William F. Marsh, General Controls Co.; Operating—George C. Pearl, The Connecticut Light & Power Co.; Sales—John C. Willis, Brockton-Fitchburg-Springfield companies.

Margot J. Whitmire, chairman, N.E.G.A. home service group, presided at the association's home service meeting on Friday, March 25. As guest speaker, William B. Hewson discussed the importance of home service activities in the new buyers' market.

Home service chairman

Ella A. Heyne, Northampton Gas Light Co., was elected chairman of the home service group; H. Dorothy Keller, Blackstone Valley Gas & Electric Co., was named vice-chairman, and Thelma R. Hunter, New Bedford Gas & Edison Light Co., was named secretary-treasurer. Elected to the home service group's executive committee were Gertrude M. Grothwait, The Connecticut Light & Power Co., and June Kinne, Cambridge Gas Light Company.

Associated organization activities

P. C. G. A. annual meeting

ROBERT A. HORNBY, vice-president, Pacific Lighting Corp., San Francisco, Calif., has been appointed head of the program committee for the fifty-sixth annual meeting of the Pacific Coast Gas Association in Santa Barbara, September 7-9, 1949. George W. Smith, Southern Counties Gas Co., Santa Barbara, has been named to head the arrangements committee, according to an announcement by P.C.G.A. President A. F. Bridge, president and general manager, Southern Counties Gas Company.

Subcommittee chairmen will include Marion L. Fort, Pacific Lighting Corp., in charge of entertainment, and Clyde H. Potter, Southern Counties Gas Co., in charge of housing.

LP-gas group appoints

APPOINTMENT of Robert E. Borden as director of publicity and advertising, Liquefied Petroleum Gas Association, Chicago, has been announced by Howard D. White, executive vice-president.

Mr. Borden, for many years publicity director of Commonwealth Edison Co., also served in various advertising and editorial capacities with the Chicago utility. He resigned at the end of 1947 and recently has been identified with the National Patent Council, American Fair Trade Council, and with an automotive equipment manufacturer, in Gary, Indiana.

Mr. Borden was president of the Publicity Club of Chicago in 1945-46 and president of the Industrial Editors Association of Chicago in 1934.



Officers of The New England Gas Association: (Front row, left to right) Earl H. Eacker, Boston Consolidated Gas Co., incoming president; Edward G. Twohey, Worcester County Electric Co., retiring president; John A. Hiller, Portland Gas Light Co., first vice-president; (rear row) James A. Cook, Lynn Gas & Electric Co., chairman, nominating committee; Otto Price, Boston Consolidated Gas Co., treasurer; Gordon G. Howie, Cambridge Gas Light Co., second vice-president; Clark Belden, re-elected executive secretary of the association. Group's annual business conference was held in Boston, Mass.

Natural gas reserves

(Continued from page 6)

reserves cannot be used as a measure of the rate at which these reserves can be produced with or without physical waste. Oil cannot be produced from the permeable rocks in which it occurs at any desired rate, because the flow of oil through the pores of the oil-bearing rocks is definitely controlled by the physical factors of the reservoir. As a matter of fact, today's known oil can be recovered

only over a period of many years and at gradually declining annual rates. This has been widely demonstrated by past performance under all kinds of operating conditions. Therefore, only incorrect conclusions as to the life of these reserves can be obtained by dividing these reserves by the current rate of production.

As in the past, this committee wishes to emphasize the fact that every effort has again been made to secure a fair, unprejudiced, and representative opinion. Each member in his district ap-

pointed a number of subcommittees to gather and study the necessary data. All previously determined factors pertaining to the various pools were examined and adjusted in the light of new information. The subcommittees, which were largely responsible for the data, were comprised of geologists and petroleum engineers with long experience in this class of work. We wish to acknowledge the valuable assistance of all those who have cooperated in this undertaking.

TABLE 4—SUMMARY OF ANNUAL ESTIMATES OF NATURAL GAS LIQUIDS RESERVES, DECEMBER 31, 1946—DECEMBER 31, 1948

(Thousands of Barrels of 42 U. S. Gallons)

NATURAL GAS LIQUIDS ADDED DURING YEAR						
Year	Extensions and Revisions	Discoveries of New Fields and New Pools in Old Fields	Total of Discoveries, Revisions and Extensions	Net Production During Year	Estimated Proved Reserves as of End of Year	Increase Over Previous Year
1946				129,262	3,163,219	
1947	192,237	59,301	251,538	160,782	3,253,975	90,756
1948	405,874	64,683	470,557	183,749	3,540,783	286,808

TABLE B—SUMMARY OF COMMITTEE'S ANNUAL REPORTS COVERING PERIOD 1937-1948

(Barrels of 42 U. S. Gallons)

PROVED RESERVES AS REPORTED PRIOR TO 1946						
NEW OIL FOUND DURING YEAR						
	Through Revisions of Previous Estimates and Extensions to Known Fields (1)	Through Discoveries of New Fields and of New Pools in Old Fields (2)	Total Through New Discoveries, Extensions, and Revisions (Columns 1 + 2) (3)	Production During Year (See Footnote at Bottom of Page 2) (4)	Estimated Proved Reserves as of End of Year (Column 3-4) (5)	Increase Over Previous Year (6)
1936					13,063,400,000	
1937	2,792,790,000	928,742,000	3,721,532,000	1,277,664,000	15,507,268,000	2,443,868,000
1938	2,243,571,000	810,493,000	3,054,064,000	1,213,186,000	17,348,146,000	1,840,878,000
1939	2,058,455,000	340,667,000	2,399,122,000	1,264,256,000	18,483,012,000	1,134,866,000
1940	1,607,012,000	286,338,000	1,893,350,000	1,351,847,000	19,024,515,000	541,503,000
1941	1,538,989,000	429,974,000	1,968,963,000	1,404,182,000	19,589,296,000	564,781,000
1942	1,618,925,000	260,051,000	1,878,976,000	1,385,479,000	20,082,793,000	493,497,000
1943	1,202,368,000	282,418,000	1,484,786,000	1,503,427,000	20,064,152,000	(—)18,641,000
1944	1,556,192,000	511,308,000	2,067,500,000	1,678,421,000	20,453,231,000	389,079,000
1945	1,690,315,000	419,984,000	2,110,299,000	1,736,717,000	20,826,813,000	373,582,000
December 31, 1945 Estimated Proved Reserves of Crude Oil Only (see note below)					19,941,846,000	

Note: Up to and including its figures on proved reserves of petroleum, as of December 31, 1945, the committee combined under that heading the estimated proved reserves of cycle-plank and lease condensate. As of December 31, 1945, the reserves so included totaled 884,967,000 bbl. and as of December 31, 1944 there were 668,701,000 bbl. included. Beginning with the report of Decem-

ber 31, 1946, the figures in this table show crude oil and natural gas liquids. It should be remembered that, previous to December 31, 1946, not all classes of natural gas liquids were included. For this reason the totals for crude oil and natural gas liquids, as herewith recorded for 1946, 1947 and 1948, are not comparable with the figures recorded for years prior to 1946.

PROVED RESERVES AS REPORTED FOR 1946 AND THEREAFTER						
Crude Oil Only						
1946	2,413,628,000	244,434,000	2,658,062,000	1,726,348,000	20,873,560,000	931,714,000
1947	2,019,140,000	445,430,000	2,464,570,000	1,850,445,000	21,487,685,000	614,125,000
1948	3,398,726,000	396,481,000	3,795,207,000	2,002,448,000	23,280,444,000	1,792,759,000
Natural Gas Liquids Only						
1946	(.....) This detail not available for 1946.				3,163,219,000	
1947	192,237,000	59,301,000	251,538,000	160,782,000	3,253,975,000	90,756,000
1948	405,874,000	64,683,000	470,557,000	183,749,000	3,540,783,000	286,808,000
Total Liquid Hydrocarbons						
1946	(.....) This detail not available for 1946.				24,036,779,000	
1947	2,211,377,000	504,731,000	2,716,108,000	2,011,227,000	24,741,660,000	704,881,000
1948	3,804,600,000	461,164,000	4,265,764,000	2,186,197,000	26,821,227,000	2,079,567,000

TABLE A

(a) CRUDE OIL—AMERICAN PETROLEUM INSTITUTE

(Barrels of 42 U. S. Gallons)

Total proved reserves of crude oil as of December 31, 1947	21,487,685,000
Revisions of previous estimates	+1,958,853,000
Extensions of old pools	1,439,873,000
New reserves (new pools) discovered in 1948	396,481,000
Proved reserves added in 1948	3,795,207,000
Total proved reserves as of December 31, 1947 plus new proved reserves added in 1948	25,282,892,000
Less production during 1948*	2,002,448,000
Total proved reserves of crude oil as of December 31, 1948	23,280,444,000
Increase in crude oil reserves during 1948	1,792,759,000

(b) NATURAL GAS LIQUIDS—A. G. A. AND A. P. I.

(Barrels of 42 U. S. Gallons)

Total proved reserves of natural gas liquids as of December 31, 1947	3,253,975,000
Revisions of previous estimates and extensions of old pools	+ 405,874,000
New reserves (new pools) discovered in 1948	64,683,000
Proved reserves added in 1948	470,557,000
Total proved reserves as of December 31, 1947 plus new proved reserves added in 1948	3,724,532,000
Less production during 1948*	183,749,000
Total proved reserves of natural gas liquids as of December 31, 1948	3,540,783,000
Increase in Natural Gas Liquids reserves during 1948	286,808,000

(c) TOTAL LIQUID HYDROCARBONS—A. P. I. AND A. G. A.

(Barrels of 42 U. S. Gallons)

Total proved reserves as of December 31, 1947	24,741,660,000
Revisions of previous estimates and extensions of old pools	+3,804,600,000
New reserves (new pools) discovered in 1948	461,164,000
Proved reserves added in 1948	4,265,764,000
Total proved reserves as of December 31, 1947 plus new proved reserves added in 1948	29,007,424,000
Less production during 1948*	2,186,197,000
Total proved reserves of liquid hydrocarbons as of December 31, 1948 ...	26,821,227,000
Increase in Total Liquid Hydrocarbon reserves during 1948	2,079,567,000

Attention gas industry photographers!

● New opportunities for recognition of outstanding photographic work in the gas industry are provided by the pictorial type cover which the MONTHLY has introduced beginning this month.

● A price of ten dollars is offered for each picture selected as a winner in the 1949 frontispiece contest. Photographs will be selected principally for their pictorial excellence, but must be related to the gas industry.

● Contestants preferably should submit glossy black and white prints not less than eight by

ten inches, unmounted. Vertical rather than horizontal pictures are required.

● Each entry should be accompanied by a 25-word caption. No restriction will be placed on use of entries following their appearance in the MONTHLY.

● Please send all photographs to: American Gas Association MONTHLY, 420 Lexington Ave., New York 17, N. Y. Be sure to exercise care in wrapping so that pictures will not be bent or otherwise marred.

A. G. A. research attacks

(Continued from page 13)

Counter Gas Appliances

A. G. A. Testing Laboratories

Gas Glow Tubes

A. G. A. Testing Laboratories

Power Burners for Commercial Cooking

A. G. A. Testing Laboratories

Induction Heating versus Gas Heating

Battelle Memorial Institute

Advanced Combustion Studies

Laboratory of Surface Combustion Corporation

Automatic Lighting Devices to Commercial Equipment

A. G. A. Testing Laboratories

Gas-Air-Oxygen Combustion

Laboratory of Surface Combustion Corporation

General Classification of Projected Research Needs in Ignition of Atmospheric Gas Burners

A. G. A. Testing Laboratories

General Classification of Projected Research Needs in Removal of Products of Combustion

A. G. A. Testing Laboratories

Improvement of Air Distribution Systems for All-Year Gas Air Conditioning

University of Illinois

General technical research projects

(Sponsored by A. G. A. Technical and Research Committee, A. G. A. Natural Gas Department, Elmer F. Schmidt, Lone Star Gas Co., Dallas, chairman.)

Gauging and Controlling Combination Oil and Gas Wells

Bureau of Mines

Pipe Line Flow Investigation

Bureau of Mines

Investigation of Removal of Excess Nitrogen from Natural Gas

Bureau of Mines

Recording Water Vapor Content Instrument

Bureau of Mines

Eccentric and Segmental Orifices

Ohio State University in cooperation with American Society of Mechanical Engineers

Investigation of Installation Requirements of Orifice Meters

In cooperation with ASME, work at Philadelphia Navy Yard, Bureau of Standards, and Virginia Transmission Corporation

New A.G.A. members

Gas companies

Cottage Grove Gas Co., Cottage Grove, Ore. (Geo. W. Macready, manager)
Shelton Gas Co., Shelton, Wash. (C. C. Cole, president)

Manufacturer companies

Central States Mfg. Co., Arkansas City, Kan. (Lyle L. Newman, president-general manager)
Dana Chase Publications, Chicago, Ill. (Dana Chase, owner)
Daniels Tool & Engineering Co., Detroit, Mich. (Joseph B. Daniels, owner)
Dowagiac Steel Furnace Co., Dowagiac, Mich. (G. O. Woodhouse)

Floral City Heater Co., Monroe, Mich. (Meyer Rosen, president)
General Air Conditioning Corp., Los Angeles, Calif. (J. E. Kercheval, vice-president)
Globe American Corp., Kokomo, Ind. (Alden P. Chester, president)
Gold Top Heating, Inc., Butte, Mont. (T. J. Sullivan, president)
Irwin Metal Products, Cleveland, Ohio (Irwin Schoenberg, owner)
Jet-Heat, Inc., Englewood, N. J. (Charles W. Wood, chief engineer)
John Inglis Co., Ltd., Consumers Products Div., Toronto, Canada (E. M. Basingthwaite, general sales manager)
Kingston Products Corp., Tipton, Ind. (B. M. Guthrie, general manager)
Koppers Co., Inc., Metal Products Div., Baltimore, Md. (Geo. C. Pfaff, manager and chief engineer, Gas Apparatus Dept.)
Lonergan Mfg. Co., Albion, Mich. (Cecil J. Merritt, chief design engineer)
The Maytag Co., Newton, Iowa (B. B. Turner, sales manager, Range Div.)

Muncie Gear Works, Inc., Muncie, Indiana (Marvin Smith, vice-president)
Natural Gas Odorizing Co., Inc., Houston, Texas (Marshall Hyde, Port Huron, Mich.)
Research Corp., New York, N. Y. (N. W. Sultzer, sales manager)
Santa Clara Stove Co., Div. of Oakland Foundry Co., Campbell, Calif. R. S. Ehret, secretary-treasurer)
Silent Sioux Oil Burner Corp., Orange City, Iowa (J. T. Grotenhouse)
Skuttle Mfg. Co., Detroit, Mich. (A. L. Evans, president)
Steel City Furnace Corp., Springdale, Pa. (T. E. O'Shaughnessy, president)
Thompson Trailer Corp., Alexandria, Va. (Robert E. S. Thompson, president)
U. S. Gas Range Corp., New York, N. Y. (Max Cooperman, plant manager)
D. W. Whitehead Mfg. Corp., Trenton, N. J. (D. W. Whitehead, president)

(More new members will be listed in the May MONTHLY.)

Advertising—spearhead

(Continued from page 8)

in the minds of our customers. The \$600,000 earmarked for extending the coordinated automatic gas range campaign in 1949 will be a big step in seeing that everyone sees, hears, and comes to know that "Gas Has Got It" for modern cooking service.

Through finding and publicizing basic facts we produced a mighty successful range campaign in 1948. Sales figures of 1,500,000 automatic gas water heaters against one million electric water heaters pointed the need for a little fact-finding in the water heating field, too. Elmo Roper's discoveries on this subject were recently summarized in a booklet released by the American Gas Association.

If you haven't read this booklet, called "The Gas Industry's Stake in the Water Heating Load," do so, by all means; it is most comprehensive.

The survey gave us the facts. Next we needed the courage to face them—good or bad—realistically. We knew that national advertising of gas water heaters for the past two years was only half that of manufacturers of electric water heaters. We also knew that this was far from adequate, if gas were to maintain the dominant position in the water heating field which it had enjoyed so long.

It was not long before arrangements were worked out between A. G. A. and G.A.M.A. to achieve something which had never been done before. In 1949,

nationally, between A. G. A. and the gas water heater manufacturers, we shall run advertisement for advertisement with our competition.

These advertisements are going to be worth every penny they'll cost. And it's a great many pennies since \$110,000 has been allocated to these four-color spreads alone. They are worth their price because they were carefully written, because the media list was selected with discrimination, and all appeals had factual support. Advertising like this is food and drink for anyone who is promotionally minded about gas water heating. Possibly the food is a bit too highly seasoned and the drink a little heady for some people in our business, but to me it is good to know that we can vigorously, truthfully and enthusiastically fight for this business.

Quality media used

The media list to place this copy before the public was chosen with extreme care. We wanted to be sure that home owners would see the advertisements. We sought for greater emphasis in the upper economic half of the market, because we knew that those low in the economic scale seldom buy automatic water heaters. We chose those publications which have the biggest quality circulations. Then all the art and copy was pre-tested to see that each element pulled well.

Now you can capitalize on this campaign with your local advertising. (The story of how The Brooklyn Union Gas

Company is facing the advertising, selling and promotional problem in 1949 is told on pages 14 and 15 of this issue of the MONTHLY.)

No one in Brooklyn Union believes that thousands of appliances will march into customer's homes of their own volition. We have a trained sales force under an incentive compensation plan. Every conceivable advertising and promotional tool will be provided them. But the impressions people have of the usefulness of a company or an industry are the result of the total effect of everything that company or industry does.

People get these impressions from national advertising, local advertising, from salesmen, conversations with friends, successful product performance, and the service a company renders.

So our advertising goal goes beyond just appliance selling. We want to feel that every customer, whether he buys an appliance from us or not, will like us as a company.

This is why we haven't ignored the informative part of our advertising schedule. One such message is going to appear every month this year in our daily and weekly newspaper list. In these advertisements, we intend to tell about our business and its problems—honestly and sincerely. In a year of tremendous sales promotions, it is not easy to allocate funds for informative advertising, but our management feels that our place in the community must

constantly be protected by telling all sides of our story.

I'd like to emphasize one problem that faces your advertising manager today. Top management and sales managers have a tendency to talk advertising budgets in terms of pre-war dollars. They sometimes forget that the advertising manager is spending 65-cent dollars today. He needs a lot more to do the same job he did before the war. And who is satisfied with the job he did then? Let's concede advertising budgets weren't big enough then, and adjust our thinking upward accordingly.

While the circulation figures of most newspapers and magazines have gone up proportionately to the increased space rates being charged, the fact remains that to run an advertisement in the "Daily Breeze" today costs a company about twice what the out-of-pocket expense was pre-war. The high cost of art work, typography, plate making and so on, is something over which we can have little control.

Sales insurance

As someone recently pointed out, it's a funny thing with most of us that when we find the going a bit tight in personal life we cut down our living costs—or in comparative words, our production expenses—and we wouldn't think of disturbing things like insurance or mortgage payments, the distribution expenses of our lives.

Yet when faced with a lean season in the gas business the same executive who is so sensible in his private life often times says "let's cut down on advertising, or printing, or sales promotion . . ." all-important forces back of distribution, and the things that can restore his business to economic health. It doesn't always make sense, does it?

But don't let me give the impression that I think management should foot all the responsibility and say to a hypothetical advertising manager, "Here son, here's twice as much money." I don't think that for a minute. In my opinion the advertising man has the responsibility of meeting this problem at least halfway. He can do it by choosing his media more carefully, making advertisements do double duty in their subject matter, re-using old ads and old art work, writing better copy that will fit into smaller space and a lot of other tricks of the trade.

As an illustration, we used to spend \$200 for art work for an advertisement. The price for the same art is \$400-plus today. But by using it over three or four times in whole or in part—inserting it in broadsides and so on—we're making our money do more than it did pre-war. We found this out the hard way—when money was short.

Each advertising man should have the responsibility of figuring the cheapest way of reaching his customers, too. Maybe for your company, radio or television is the answer. For mine it's newspaper advertising and direct mail. But in any case there is a "best way" and it's worth looking for.

The advertising and sales problems of gas companies differ widely. Often it is difficult to see how a company fits into the national scheme of things. For instance, the electric water heater is an oddity in Brooklyn—and we shall do what we can to keep it that way. But we see from this no reason why we shouldn't support to the hilt national campaigns to overcome this competition. Under an integrated and intelligently conceived program, money will be spent judiciously and effectively. This means we spend less money over-all. Local tie-ins only complete the picture.

I believe that the gas industry's national advertising program is telling the basic story of gas and gas appliances in an interesting way. It is telling that story again and again to people who are not being reached by our salesmen and it eventually will bring these people and our salesmen together—all over this country.

The national and local advertising programs in the gas industry have helped us to develop into very stubborn characters in the merchandising field. We aren't giving up to the competition easily.

Advertising has helped to create a very optimistic atmosphere for all of us in the gas industry and has implanted in the minds of men and women the idea that gas is a modern fuel—that gas appliances are the last word in modern style and usefulness of all those on the market. Holding the interest of the future buyer is virtually as important as getting the interest of the immediate prospect. In this respect our advertising has always been the spearhead for promotion. And that helps us reach everybody's goal—"Successful Promotion."



1949

APRIL

- 4-6 • A. G. A. Distribution, Motor Vehicle and Corrosion Conference, Netherlands Plaza Hotel, Cincinnati, Ohio
- 5-7 • A. G. A. Sales Conference on Industrial and Commercial Gas, Andrew Jackson Hotel, Nashville, Tenn.
- 5-7 • G. A. M. A. annual meeting, Broadmoor Hotel, Colorado Springs, Colo.
- 10-12 • Gas Meters Association of Florida-Georgia Annual Meeting, Ponce de Leon Hotel, St. Augustine, Fla.
- 11-13 • A. G. A.-E. I. Spring Accounting Conference Hotel Book-Cadillac, Detroit, Mich.
- 11-13 • Mid-West Gas Association, forty-fourth annual convention, Hotel Fort Des Moines, Des Moines, Iowa
- 12-14 • Southwestern Gas Measurement Short Course, College of Engineering, University of Oklahoma, Norman, Okla.
- 20 • Southern Gas Association, Home Service Workshop, Biloxi, Miss.
- 20-22 • Southern Gas Association, annual convention, Buena Vista Hotel, Biloxi, Miss.
- 22 • The Maryland Utilities Association, annual meeting, Lord Baltimore Hotel, Baltimore, Md.
- 28-29 • Indiana Gas Association, annual convention, French Lick Springs Hotel, French Lick, Ind.

MAY

- 4-6 • Missouri Association of Public Utilities, annual convention, Hotel Muehlenbach, Kansas City, Mo.
- 9-10 • A. G. A. Natural Gas Department Spring Meeting, French Lick Springs Hotel, French Lick, Ind.
- 9-13 • A. G. A. Industrial Gas School, Hotel Severin, Indianapolis, Ind.
- 17-19 • Pennsylvania Gas Association, annual convention, Galen Hall, Wernersville, Pa.
- 23-25 • A. G. A. Production and Chemical Conference, Hotel New Yorker, New York, N. Y.
- 24-27 • National Restaurant Exposition, Atlantic City, N. J. (A. G. A. will have combined exhibit)
- 26-27 • A. G. A.-P. C. G. A. Domestic Research and Utilization Conference, Ambassador Hotel, Los Angeles, Calif.

JUNE

- 16-20 • Canadian Gas Association Annual Convention, Bigwin Inn, Lake of Bays, Ontario
- 20-21 • A. G. A.-N. Y.-N. J. Regional Gas Sales Conference, Essex & Sussex Hotel, Spring Lake, N. J.

Personnel service

SERVICES OFFERED

Salesman—Seeking position as Manufacturer's representative for gas ranges, space heaters and sundry equipment. Twenty years experience in wholesale and retail selling. Prefer lower New England, New York and Long Island territory on salary and commission basis. Can furnish own car; references. 1605.

Sales Manager—Graduate engineer, over 20 years in sales promotion of house heating and commercial gas appliances. Included servicing as well as selling for appliance manufacturers and utilities. 1606.

Sales Representative—7 years experience selling and specifying major gas appliances wholesale and retail gas heat, water heat, etc. Sold Utility companies and trade. Vicinity New York City. Married. References available 1607.

Would be interested in an interview with manufacturer to represent them in the metropolitan area of New York, on house heating, industrial or domestic. 1608.

Manager-Engineer—Extensive training and experience in all phases of manufactured gas operations—management, production, distribution, service, sales, rates, labor relations, etc. Also experience in natural gas and propane-air gas. 1609.

Manager-Engineer—Extensive training and experience in management and operation of Natural Gas Properties. Experience includes high and low pressure distribution design, sales and commercial activities. 1610.

Mechanical Engineer—Young veteran, recent graduate. No experience in engineering field. Looking for position with future in power or refrigeration and air conditioning fields. Prefer New York area, but willing to travel anywhere in U. S. after June. 1611.

Engineer—Desiring pipe line work—general construction work. Graduating (Civil Engineer) from Yale, June 1949; five summers in municipal pipe work. 1612.

Executive Engineer with Mechanical Engineering degree and professional engineering license. 12 years' experience consisting of research and testing work at the A.G.A. Laboratories, consulting work and the design, development and production of gas heating equipment. Experience also includes the advertising, promotion and sale of gas heating equipment. 1613.

Assistant to President of manufacturing company was formerly successful industrial gas engineer and sales supervisor. Has pined for his "first love" ever since the "divorce" and wishes to return to position in or related to gas industry which will permit him to maintain present rate of income. 1614.

Junior Chemist—B.S. in Chemistry, College of the City of New York, 1949. Conscientious,

ambitious veteran, single. Majored in Organic Chemistry; Organic Analysis. Also have one year of Biochemistry. Prefer New York Metropolitan Area, but will accept out-of-town position. (25). 1615.

POSITIONS OPEN

Home Service Directors—For employment with a leading Liquefied Petroleum Gas marketing company with district offices in Indiana, Illinois, Kentucky, Ohio, Michigan, Pennsylvania, New York, New Jersey, and Maryland, requires 16 experienced home service directors, age 25 to 40 years. Choice of location. Accompany reply with photograph and full qualifications. Our employees know of this offer. 660.

Arizona public utility seeks experienced gas engineer with executive ability for distribution system design, load forecasting and associated subjects. Permanent position and excellent opportunity. Give details. 0550.

Wisconsin Utility—planning changeover to Natural Gas—seeks experienced Gas Engineer for distribution system design, load forecasting and associated subjects. Permanent position and good opportunity. Give age, education and experience. 0551.

One **Manager** and one **Salesman** for gas properties Vermont conversion to propane-air. 662.

Salesmen—for Midwest States and Pacific Coast territories. Excellent opportunity for men familiar with distribution phases of gas industry to sell to gas companies, control manufacturers and petroleum industry. Product is well known and well advertised. Old established company. Salary, commission and expenses. Write complete details of background and experience. 0553.

LET US HELP YOU FIND THE MAN YOU WANT

The Association is equipped to place gas company executives, manufacturers of equipment and others, in touch with competent and experienced personnel by means of advertisements on this page under (1) SERVICES OFFERED and (2) POSITIONS OPEN.

A.G.E.

Production program powerful

(Continued from page 31)

making coke oven repairs will be presented by Elliott Preston, Koppers Co., Pittsburgh.

Problems of particular interest to the fast-growing LP-gas industry as well as the utility gas industry will be covered in three addresses: "The Use of LP-Gas as a Replacement for Manufactured Gas" by Ralph F. Gibson, Tide Water Power Co.; "Code for Utilities on the Use and Handling of LP-Gas" by C. George Segeler, A. G. A. utilization engineer, and "Problems of Small Gas Plants Pending Advent of Natural Gas" by H. M. Kopp, The Connecticut Light and Power Company.

Four separate luncheon conferences on Tuesday afternoon are designed to provide a wealth of practical information. They include a continuation of the Monday session on Carbonization and Coke and the following additional conferences: Water Gas Operation—R. B. Paquette, The Peoples Gas Light and Coke Co., chairman, and A. G. Hall, The Brooklyn Union Gas Co.,

alternate chairman; LP-Gas—A. B. Lauderbaugh, The Manufacturers Light & Heat Co., Pittsburgh, chairman, and C. L. Hulswit, Rockland Gas Co., Spring Valley, N. Y., alternate chairman; Oxygen and its Application to Gas Making—L. L. Newman, Bureau of Mines, Washington, chairman, and Robert R. White, University of Michigan, alternate chairman. The latter will feature a panel discussion on new gasification processes.

A study of the plastic properties of coal as related to coal carbonization, presented by C. C. Russell and Michael Perch, Koppers Co., Inc., Kearny, N. J., will spearhead the Wednesday morning general session. Highlights of the extensive gas production research program will be described by F. J. Pfluke, Rochester, chairman, Gas Production Research Technical Advisory Committee. H. R. Linden, Institute of Gas Technology, will discuss methods of estimating oil gasification yields, and Hugh E. Ferguson, The Peoples Gas Light and Coke Co., will bring the delegates up to date on instrumentation and process control in the gas industry.

Concluding this session, Dr. D. A. Reynolds, Bureau of Mines, Pittsburgh, will speak on blending Pocahontas No. 3 with 12 high volatile A coals.

The final general session, Wednesday afternoon, will focus attention on accident prevention, supervisory training, equipment and other developments. Philip G. Facey, Northampton Gas Light Co., chairman, Gas Production Subcommittee on Safety, will tell "What Production Men Are Doing About Safety." New methods of operation and equipment offered by the builders will be described by A. E. Harvey, Stacey Brothers Gas Construction Co., Cincinnati. Two related papers, "Hidden Values in Gas Tars" and "Recent Developments in Treatment and Dehydration of Tar" will be presented respectively by C. R. Kinney, The Pennsylvania State College, and R. Van Vliet, New York and Richmond Gas Co., chairman, A. G. A. Subcommittee on Tar.

Rounding out the agenda will be a discussion of a development program for supervisors by Wallace G. Strathern, Eastern Gas and Fuel Associates.

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